Say Again! Aviation English in a CALL World

English for Special Purpose in an e-learning context

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Declaration

This thesis contains no material that has been accepted for the award of any other degree or diploma in any educational institution and, to the best of my knowledge and belief, it contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signed: 

Date: 25 April 2019

The ethics approval for this research received the approval of the Ethical Research Health and Education Committee of the University of Canterbury on 14/03/2018 with an amendment approved on 18/07/19 Ref: 2018/07/ERHEC Amendment 1

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Abstract

A critical component of the aviation industry is communication. Aviation English is the international language of aviation and it is spoken by aviators (pilots and air traffic controllers) across the globe. Educators in the aviation field are looking to technology to provide a training platform for Aviation English for non-native English speakers and they have concerns about aviation students' motivation to learn in an online context. This research project explores Aviation English from an e-learning perspective and seeks to answer the questions, "Are students of Aviation English motivated to learn in an online environment?" and "What components need to be present in an e-learning Aviation English course to optimise student engagement?"

This project used a case study research approach to examine the experiences of international students of aviation, who were or had been based in two aviation training organisations in New Zealand. Data was gathered from student pilots, student air traffic controllers, teachers and the researcher through a survey of students, interviews with teachers and the researcher's journal. Dörnyei's (2016) theory of Direct Motivational Currents was used as a framework for understanding students' motivation for e-learning. Findings showed that students could be motivated to participate online but were only motivated when certain elements were present within the training organisation and within the course design. The conclusions are useful for informing English for Special Purpose (ESP) educators and course designers about the critical elements that need to be present to motivate student participants in an e-learning context.

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1 Introduction

The purpose of this research project has been to explore student motivations for participating in an e-learning context for the purpose of building competency in Aviation English. Aviation English has traditionally been delivered in a face-to-face classroom. This topic was chosen because of a desire by training organisations to understand the implications of transitioning to an e-learning delivery mode for Aviation English, and to get a greater understanding of student motivations around learning online. Aviation English is more than just a communication competency. An aviator's ability to communicate well in English is imperative for safety. Prior to 1994, there were a number of high-profile aviation accidents where the cause of error was identified as being the lack or disparity of English language proficiency of aircrew and/or air traffic controllers (ATC). Crushing (1994) looked at many of these incidents and concluded that most of them could be attributed to individual cognitive and social factors relating to language use. Following this, in 2003, the International Civil Aviation Organisation (ICAO) introduced the Language Proficiency Requirements (ICAO 2010, section 4.2.1). Under these requirements, all pilots and ATC must demonstrate the ability to speak and comprehend English to an operational standard. Based on these requirements, this research looks only at the speaking and listening competencies of language learning.

It is important to understand that communication is just one component of aviation safety. The most common reference for aviation safety considers 'The Anatomy of Error' and 'The Swiss Cheese Model' (Reason, 1998), which state that incidents are very rarely the result of one primary error or issue. There is a whole sequence of events/errors resulting in the incident. However, ensuring a level of competency in Aviation English strengthens one key component of the safety model - communication. In addition to safety there are other benefits to a successful communication environment. These include effective teamwork, expeditious problem solving and quick access to information. These provide improved workflow in an air traffic control and cockpit environment, which facilitates economic efficiency across the whole sector. According to Emery (2014)

radiotelephony communications, by their very nature, are often predictable and repetitive standard phraseologies. There are, however, many instances where the standard phraseologies do not serve pilot or ATC communication and non-standard communication is required. This non-standard communication can be viewed as English for Special Purpose (ESP). It is the area of non-standard communication that provides the biggest challenge for the industry (Emery, 2014).

The aim of this research is to determine if it is worthwhile developing and testing a e-learning Aviation English course that could replace or complement the face-to-face classroom teaching.

The purpose of an online Aviation English course is to build ESP capacity (the speaking and listening competency) in students of aviation outside of the mainstream classroom. E-learning of Aviation English could allow for greater student numbers, for students to be geographically distanced from the training organisation and it could support the training organisations to provide economic efficiencies.

While it is important to consider the implications of a quality e-learning Aviation English course, this problem is essentially an e-learning problem with motivation at its core.

The digital products available to support online language learning in 2019 are significantly superior to those that were available in 2003 when the ICAO standards were introduced into the aviation sector. Now that there have developments in the technology which makes e-learning available, it now becomes important to understand what is needed to motivate student participation in an online setting.

There is a perception in the industry that students are not or cannot be motivated to learn Aviation English online. The aim of the research is to ascertain why students may not engage in e-learning and to identify the factors that need to be present to ensure engagement with an Aviation English online context. E-learning is a wide field and it encompasses many facets of pedagogical study and application. Kumir (2015) summarised the key issues faced by students in e-learning:

1. Adaptability - the struggle to adapt to different learning styles.
2. Technical challenges - outdated hardware and software, and access to bandwidth.
3. Computer literacy - while most students can operate in an e-learning environment, many will not have had sufficient training in a wide range of programmes.
4. Time management and distractions in the e-learning environment.
5. Self-motivation and drive to complete e-learning tasks.

This research project is focused on a single case of international aviation students based in two New Zealand training organisations and uses qualitative research methods to gather data. The data sources were a student survey, teacher interviews and researcher journal entries.

This research study had limitations. Originally, it was proposed that the research be design-based research and that an e-learning course be designed, delivered to a cohort of air traffic control or pilot trainees, and evaluated. However despite exhaustive attempts it was not possible to gather a cohort to participate in an e-learning course so the research project was redesigned to explore the research questions in other ways. In the final case, the participant numbers were small and there is reliance on the researcher journal as qualitative data. These limitations were considered throughout and mitigated where possible.

The questions that guided this study were:

- How are students generating motivation to participate in the e-learning course?
- To what extent do they have an Aviation English end goal and an accompanying vision that energises their participation?
- What external factors influence a student's motivation to participate in an e-learning Aviation English course?
- What components need to be present in an e-learning course to optimise student engagement?

The results of this research will be useful in informing training providers about the key elements of motivation and the content needed to build proficiency in an Aviation English e-learning platform. It will also be useful for any industry where English for Special Purpose (ESP) is engaged.

Today there is visibility of e-learning in other sectors, a push for student self-efficacy, and a need for collaborative learning, which have generated a desire for an e-learning solution. A solution is sought that will provide support for students in developing the English skills, competency to be able to deliver a safe aviation service and to meet the ICAO Language Proficiency Requirements (ICAO 2010, section 4.2.1) in a non-face-to-face ("f2f") or blended learning environment.

There are two key training organisations participating in this research. They both wish to understand what motivates students to engage with an e-learning course and what could be included in a course to allow students to engage in an e-learning space. The aviation organisations' motivation for an e-learning Aviation English course comes from a desire to manage training times and costs, to allow for student flexibility, improve educational outcomes and to create more individualised and student-centred learning programmes.

This thesis has six chapters. In chapter two, the relevant literature around motivation, social presence, CALL, gamification and Aviation English are all considered. Chapter three unpacks the methodology and design of this mixed methods research and Dörnyei's (2016) model of Direct Motivation Current, which is used as a guiding theory. Chapter four provides the findings from the case study. The survey, the interviews and the researcher journal were triangulated to identify key themes. Chapter five is the discussion section and this is presented in three key areas: motivation, CALL and Aviation English. Chapter six, the conclusion, provides an overview and makes recommendations about the key principles for an Aviation English e-learning course design and motivation as well as recommendations for further research.

2 Literature Review

2.1 Introduction

This thesis investigates how students generate motivation to participate in an e-learning Aviation English course and will identify the components needed in course design in order to build engagement.

Student efficacy, collaborative learning, culture and context are contributors to students' motivation to learn. Self-efficacy, as defined by Bandura (1986), involves the students' "… judgements of their capabilities to organize and execute a course of action required to attain designated types of performances" (Bandura, 1986, p. 391); collaborative learning is often defined as "two or more people working together toward a shared learning goal" (Jeong & Hmelo-Silver 2016, p.247).

Given that this study explores international students' motivations, it is important to consider culture and context and the influence these have on a student's motivation to participate in an e-learning language setting (Blake 2013). The literature review draws on research from a range of cultural and contextual settings when considering motivation to participate in e-learning language learning.

This literature review draws on current perspectives relating to motivation to participate, social presence, computer-assisted language learning (CALL), gamification, Aviation English and finally the theoretical framework in practice.

2.2 Motivation

2.2.1 Personal Motivation and Self-efficacy.

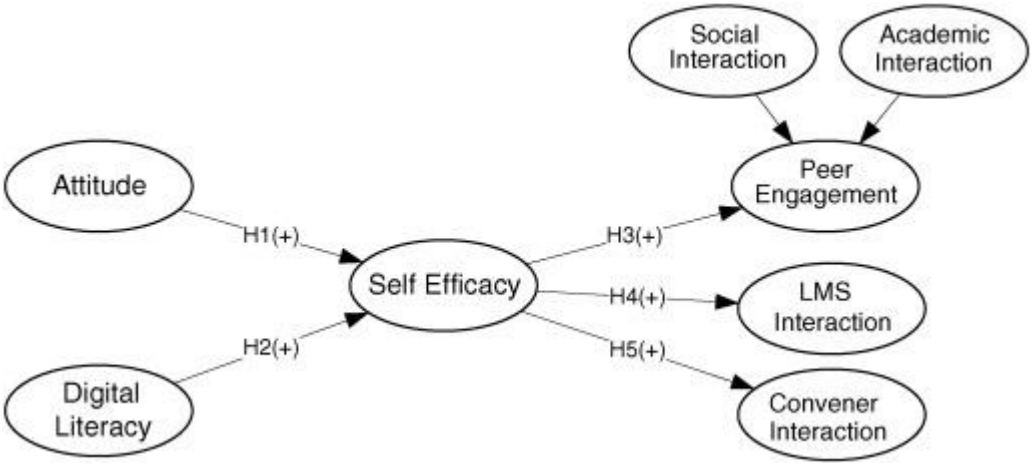
Motivation needs to be reviewed through the lens of the individual. In reviewing the literature, a view can be gained about what motivates participation and how important students' self-efficacy is when considering motivation to participate in an e-learning context.

Mutambik, Lee & Foley (2018) used qualitative research that involved group interviews in order to understand the perspective of students and teachers in Saudi Arabia around the readiness of the

students to use e-learning to study English as a Foreign Language. Using qualitative research group interviewed of teachers and students and identified three factors that had an impact on student readiness to participate in an e-learning EFL course. These were self efficacy, personal drivers and access to the required resources.

Prior, Mazanov, Meacheam, Heaslip & Hanson (2016) carried out a qualitative study that involved a survey of postgraduate students participating in distance courses that were being offered by a business school in Australia. E-learning distance courses are an area of growth for business education and 360 students participated in the study. It is important to note that there was a significant gender bias in this study, with 68% of participants being male, and it is unclear if the bias had an impact on the results. While this study was not set in an EFL setting, it was reviewing postgraduate students in a non-face-to-face learning environment and it looked at the importance of self-efficacy on e-learning behaviours. Findings suggest that self-efficacy has positive effects on peer engagement and interaction with learning management systems as well as interactions with teachers. Self-efficacy was placed at the centre of an interactional model that was used in the hypothesis (see figure 1).

Figure 1 *Self-Efficacy Hypothesis. Source: Prior, Mazanov, Meacheam, Heaslip & Hanson (2016)*



A key conclusion of this study showed that positive student attitudes should be encouraged because they support self-efficacy. They went on to recommend that educators look at the learning management systems they have in place and they should ensure there is variety of content and

pedagogical strategies to improve communication in order to facilitate peer engagement, convener (teacher) interaction and learning management system (LMS) engagement.

Various studies have shown positive links between e-learning and increased motivation (Toffoli & Socket 2015, Rashid & Asghar 2016, Liu 2013) with the latter two also linking this to improved learning outcomes. It is interesting to consider whether teacher perceptions of e-learning have an impact on the motivation of students. Toffoli & Sockett (2015) used qualitative methods to survey thirty French university English teachers at the University of Strasbourg about their knowledge and use of informal e-learning practices. This included activities like watching TV, YouTube, and online games. Professors were not overly positive about the impact or implications of informal e-learning for their students. The number of participants in this survey is quite low; however, there was evidence that there was enough participation to allow for the generalisation that we see in the results. To support these findings, Hubbard & Levy (2006) reported that teachers in a tertiary education environment utilised very little of the technology training they had been given in their teaching practice and appeared to using their existing (not e-learning based) methods of preparation and planning even if they had been given training in new learning management systems. Both Toffoli & Sockett (2015) and Hubbard & Levy (2006) reported that the university teachers saw the value in using informal e-learning platforms and were potentially interested in using e-learning resources and learning strategies. The contradiction between seeing the value in using e-learning and the failure of actual planning and integration into course content can be explained. The teachers felt there was a need to make adaptions to time, curricula and educational systems to allow for more e-learning opportunities and there was some belief that students would not use e-learning opportunities effectively. When considering the impact of e-learning for students, teachers mentioned observing an increased curiosity about English and an increased motivation to learn the language. There was evidence that the informal e-learning platforms provided the basis for more in-depth classroom discussion and students were motivated to discuss what they had seen in e-

learning with teachers in a face-to-face setting. The findings showed that motivation for students to learn in an e-learning setting was evident; however, systems and curricula need to be adapted and recreated to accommodate the new pedagogical approach.

The next area to consider is the connection between the motivation to use technology and student achievement. Rashid & Asghar (2016) studied a group of 761 female undergraduates at a private university in Saudi Arabia. They used a qualitative research tool called MTUAS, a media and technology usage scale (Rosen, Whaling, Carrier, Cheever & Rokkum 2013), to measure motivation and student achievement. The study was limited by self-declaration of GPA (grade point average) and by the fact that GPA was the only achievement data included in the study. The findings showed that, when the empirically-tested MTUAS was used and other modes of technology were integrated effectively in an academic setting, there was an increase in motivation to participate and there was also an increase in academic outcomes. There were 60 modes of technology used by Rashid & Asghar (2016) comprising 15 subscales, namely: Smartphone Usage (9 items), General Social Media Usage (9 items), Internet Searching (4 items), E-Mailing (4 items), Media Sharing (4 items), Text Messaging (3 items), Video Gaming (3 items), Online Friendships (2 items), Facebook Friendships (2 items), Phone Calling (2 items), TV Viewing (2 items), Positive Attitudes Toward Technology (6 items), Anxiety About Being Without Technology or Dependence on Technology (3 items), Negative Attitudes Toward Technology (3 items) and Preference for Task Switching (4 items).

In the area of language learning specifically, Liu (2013) explored the impact of CALL (Computer Assisted Language Learning) on speaking and listening competencies. Using action research, and qualitative and quantitive data from a cohort of 102 participants from a university in north eastern China who had reached (or were close to reaching) an intermediate level of English proficiency, the findings showed that test scores improved and students surveyed showed engagement with the technology. These students actively used Blackboard LMS (Learning Management System) which utilised the key functions of online chat, threaded discussions, eBooks, audio and video files, and

online tests and quizzes that were all in the target language. Students demonstrated motivation and there was evidence of efficacy and self-motivation that was visible through participation. The students made good progress in a 6-week timeframe within the speaking and listening competencies by integrating effective use of technologies. While this study is narrow, being limited to a Chinese context, it provides further evidence of student progress, achievement and engagement in an e-learning context. Findings also showed that there was an increase in student ability to communicate in English and increased use of technology when used with the purpose of promoting learner autonomy (learner agency).

Zou (2013) completed a study that looked at two UK university language centres and used qualitative data collected from questionnaires, interviews and observations. Two hundred students, who had contact with more than 20 teachers, were involved and they ranged in age from 20-28 years of age. Participants came from China, Japan, Korea, Thailand, the Philippines, Italy, Cyprus, Germany and Greece. Findings showed that a key factor in their success was the careful selection of the right software for the situation. The software packages used in this study were EASE: Listening to Lectures eLanguages (online), Streaming Speech SKY: Pronunciation, EASE: Seminar Skills 1 and Presentations TASK (online sources). These software programmes focused on the development of academic skills for students to practise their listening and speaking skills in and out of class and were synchronous and asynchronous. Students reported that they were more engaged and motivated if they received individual teacher feedback and interaction after completing CALL tasks. It was noted that activities needed to be planned to enable feedback from the teacher (Yang 2011). It was also found that an e-learning environment provided better opportunity to ascertain whether students were engaged or not. By including synchronous and asynchronous elements in the course design, students were able to engage with the teacher and classmates outside of class time and this improved their language learning performance significantly.

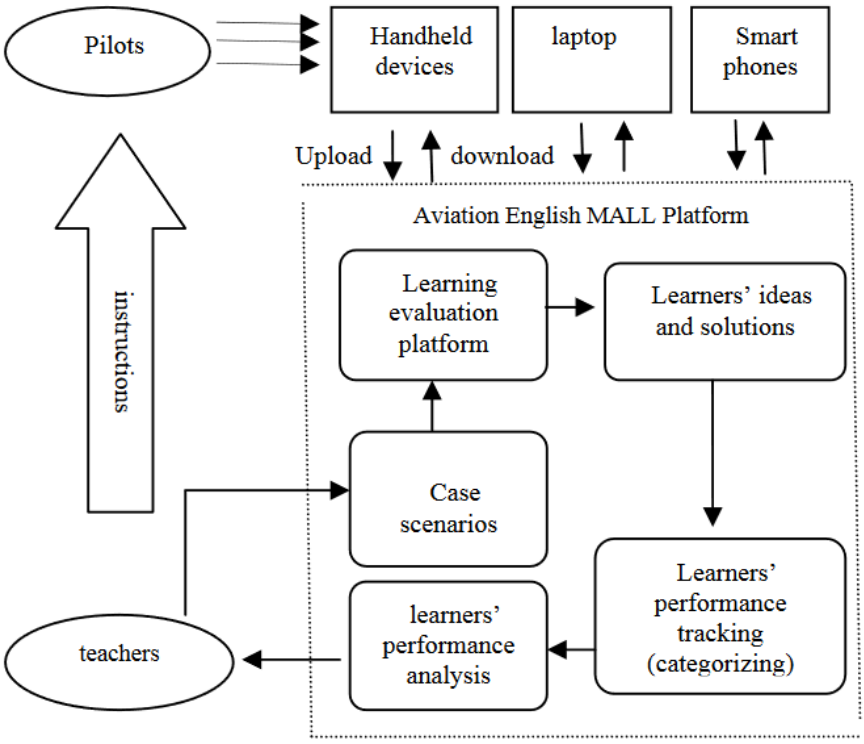
Although fewer studies have been conducted specifically in the Aviation industry, a number of studies have explored technology as a means of improving communication in aviation (Istifci (2016) Beagle & Davies (2003), Wang & Wu (2016)). Research was conducted by Istifci (2016) on a project aimed at improving the technical English for students studying aircraft maintenance at 10 Aviation Schools across 10 cities in Turkey. The study used both qualitative and quantitative instruments for data collection. The baseline English of the participating students was not good enough to achieve the Aircraft Maintenance Licence and this meant that many students were forced to participate in a self-directed course via an e-learning management system. Whilst students liked the e-learning course, most would have preferred blended learning, favouring the face-to-face component because of the relationship with the teacher. However, the immediate feedback from the teacher that the online context was valued by students. One of the barriers to students' use of the e-learning platform was lack of preparedness, and limited social interaction in the course. It was noted that many students needed full training to use the learning management systems before they started on the online course, confirming the aspect of digital literacy that Prior, Mazanov, Meacheam, Heaslip & Hanson (2016) indicated was an important pre-cursor to self-efficacy.

Beagle & Davies (2003) reviewed a programme that was being run at the University of Melbourne called Beyond Level 4 (BL4). This programme was developed as a self-paced distance programme for non-native speakers of English who were pilots and ATC and who wanted to improve their ICAO rating score. The pronunciation element of this course was delivered in a programme called FLASH as it was considered the most useful e-learning tool for multimedia development at the time and highly suitable for aviation training material and ATC/flight simulations. Given that this was 2003 and technology has improved in the 16 years since this study was completed, it is still useful for us to consider this research because FLASH was driven by multimedia and multi-modal applications which are in use today. Armellini (2015) indicated that a lack of social presence and the building of an online community are definite limiting factors for student motivation and the Beyond Level 4 (BL4)

programme did not include either social presence or online community. The authors did, however, conclude that, as a whole programme, it was generally fit for purpose and appeared to be achieving its objectives.

Wang & Wu (2016) presented a conference paper that looked at Aviation English using a Mobile Assisted Language Learning (MALL) approach to improving motivation in an Aviation English course and suggested that, because MALL transcended time and place, students engaged more actively with the programme via their mobile devices. It is important to note that this was not a research project and draws on limited literature to form the conclusions. It does share a model for Aviation English learning in a MALL context. See figure 2, which describes the framework and interactions of the MALL platform. Students of Aviation English could upload or download activities, quizzes and case studies that contained both practical and abstract ideas that had been created by the Aviation English teachers. The learning that happened wasn't necessarily new or different from that which happened in the aviation classroom; however, what this approach did afford was student efficacy and the ability to save time and to use time outside of the classroom to build their Aviation English skills quickly and efficiently.

Figure 2 *– The Framework of MALL Platform* ***Source:*** *(Wang & Wu (2016)*



E-learning has been an effective scaffold for the learning of Aviation English in a variety of global contexts. What appears to be most important for motivation is out-of-the-classroom learning opportunities afforded through mobile learning, and informal and social learning opportunities

2.2.2 Motivation to Participate in Aviation English

This thesis is examining students' willingness to participate in an e-learning Aviation English course and so it is important to consider the student motivation to study Aviation English as a subject. Despite an extensive search for evidence, there appears to be no literature on student motivation to learn Aviation English specifically. Therefore, the literature reviewed here has been expanded to explore students' motivations to participate in credit-bearing and non credit bearing Academic Language Learning (ALL) courses. Fenton-Smith and Humphreys (2015) explored the mechanisms that support academic learning in postgraduate students who had English as a foreign language. This was a qualitative research project that involved a participant survey, and 74 staff members were invited to participate based on their knowledge about practices at Australian universities. The

study indicates that credit-bearing ALL (Academic Language Learning) courses were viewed as highly effective by both students and teachers. All non-credit-bearing workshops and courses were rated as least effective. While this study was not focused on students of Aviation English, the findings are useful for Aviation English teaching and learning because both English for Academic Purposes and Aviation English fall into the ESP (English for Special Purpose) category. To further reinforce the value of efficacy, Xue (2017) completed a case study of a first-year student at a Police college in China, who had been offered an unconditional place at an Australian university, and used qualitative in-depth interview data to gain knowledge of English for Academic Purpose motivation. The data showed that autonomous learning provided the greatest motivation for the students. Xue (2017) found that the key to motivation in language learning was for teachers to mentor learners into taking personal responsibility for their learning and to build the learners' capacity to be autonomous. "Self-directed learners are not intellectual Robinson Crusoes, cast away and shut off in self-sufficiency. In this sense, the important role of teachers in enabling and supporting learners cannot be over-stressed in fostering learner autonomy." (Xue (2017) p8)

To further investigate student motivations, Martirosyan (2015) analysed how students who had English as a foreign language perceived their ability to speak English, and showed significant differences between language proficiency, multilingualism and academic performance. The highest GPA (grade point average) was present for students who had perceived that their English-speaking ability was strong. The findings indicate that students who have a high perception of their ability are more likely to achieve academic success.

Credit-bearing courses and students' self-perceptions, confidence and efficacy are critical success factors for Aviation English learners.

2.2.3 Social Presence

The need for social presence in online language learning has been a recurring theme throughout the reviewed literature and it is a strong contributor to student motivation. The theory of social

presence explores how individuals present themselves in an online learning environment, how 'real' they appear in that context, and can be defined as the degree to which an online learning environment can support the creation of an effective social space where learners trust each other and feel connected with a group (Akcaoglu & Lee, 2016).

In the USA, Bowers & Kumar (2015) did a comparative preliminary study to look at students' perceptions of social and teacher presences in e-learning and in traditional classrooms. They surveyed language learning students; 34 e-learning students and 29 face-to-face students who were undertaking the same undergraduate course. The findings were unexpected: they showed that students perceived a stronger relationship with their teacher when they were working in an online environment compared to in a face-to-face situation. The research identified that the presence of teacher relationships and social presence with peers in e-learning courses was a major factor contributing to motivational and educational outcomes.

Dunlap and Lowenthal (2014) looked at specific strategies that course writers have used in their teaching and course design in an attempt to assimilate and create 'real' relationships in the online classroom. This was qualitative research using student surveys as the primary research tool and teacher experiences, along with their own teaching methods, as the secondary tool. It was based around the idea of a 'quest' that runs throughout and creates the metaphorical inference of social presence. They looked at the range of tools they used in their own teaching and evaluated each.

The key areas focused on were:

- Description of the role of social presence as it relates to student engagement in online courses.
- Selection of strategies that establish and maintain social presence in online courses.
- Analysis of the perceived effectiveness of both low-tech and high-tech approaches to establishing and maintaining social presence.

The results showed that many of the tools used were effective. It pointed to low-tech activities being most effective (group discussion, personal emails, phone calls) as opposed to hi-tech activities (Twitter, video creation, online gaming).

Akcaoglu & Lee (2016) looked at the importance of group/class size and its impact on the perceived social presence. Discussion forums in online learning provided the context for the connection in their research. It focused on graduate courses where asynchronous communication tools are commonplace. The study has the goal of reviewing the importance of good instructional design decisions that will support the social aspects in an online learning environment.

In this qualitative study, Akcaoglu & Lee (2016) drew on three established survey instruments to explore cohesion, sociality and positive use of social space in an online language learning environment.

The results showed that the students who participated in the smaller group showed a higher degree of perceived sociability compared to those in the larger group. Social space scale showed a similar significant result, with students considering that the smaller group allowed them to build more positive social relationships. In terms of cohesion, the results indicated that students perceived a higher rate of cohesion in the smaller group. Some students reported that they enjoyed a large quantity of posts and feedback from a larger group but, within the volume of posts shown as having an impact on the quality of whole class discussion, some students reported the feeling that their posts would often go unread by others.

The literature shows that social presence is an important motivating factor in e-learning and that this can be effectively achieved through online learning particularly, in small groups.

2.3 CALL

The wider landscape of Computer Assisted Language Learning (CALL) will be considered along with the genesis of the field. Warschauer (1997) considered the future of CALL and the importance of collaborative language learning. Warschauer's work is derived from the concepts of Vygotsky (1962) who brought to the fore the importance of social interaction in a language-learning environment. Warschauer was optimistic about e-learning for language learning and about the possibilities for student connections across distance, time and culture (see table 1). He recognised the educational value of creating e-learning communities and this provides us with a tool for creating collaborative communities of learning that can enhance powerful teaching and learning connections.

Bax (2003) looked at the past, present and future of CALL and he concluded that, through ethnographic assessment and action research, we could continue to develop a suitable agenda for CALL research and application into the future. He provided a substantive review of Warschauer's three stages of CALL (Warschauer 2000) and concluded that it was necessary to create an alternative to Warschauer's stages, which were bound by time. He considered that it was important for educators to see clearly where CALL is positioned in terms of use ('restricted', 'open' or 'integrated') so we can get a clearer view of the future pathways (see table 2).

Table 1 *Warschauer's three stages of CALL* ***Source****: Warschauer (2000)*

Stage	1970s–1980s: Structural CALL	1980s–1990s: Communicative CALL	21st Century: Integrative CALL
Technology	Mainframe	PCs	Multimedia and Internet
English-teaching paradigm	Grammar-translation and audio-lingual	Communicate [sic]language teaching	Content-Based, ESP/EAP
View of language	Structural (a formal structural system)	Cognitive (a mentally constructed system)	Socio-cognitive (developed in social interaction)
Principal use of computers	Drill and practice	Communicative exercises	Authentic discourse
Principal objective	Accuracy	And fluency	And agency

Table 2: Restricted, Open and Integrated CALL: an outline **Source**: Bax (2003)

Restricted, Open and Integrated CALL: an outline

Content	Type of task	Type of student activity	Type of feedback	Teacher roles	Teacher attitudes	Position in curriculum	Position in lesson	Physical position of computer
Restricted CALL								
Language system	Closed drills Quizzes	Text reconstruction Answering closed questions Minimal interaction with other students	Correct/incorrect	Monitor	Exaggerated fear and/ or awe	Not integrated into syllabus—optional extra Technology precedes syllabus and learner needs	Whole CALL lesson	Separate computer lab
Open CALL								
System and skills	Simulations Games CMC	Interacting with the computer Occasional interaction with other students	Focus of linguistic skills development Open, flexible	Monitor/ facilitator	Exaggerated fear and/or awe	Toy Not integrated into syllabus—optional extra Technology precedes syllabus and learner needs	Whole CALL lesson	Separate lab—perhaps devoted to languages
Integrated CALL								
Integrated language skills work Mixed skills and system	CMC WP e-mail Any, as appropriate to the immediate needs	Frequent interaction with other students Some interaction with computer through the lesson	Interpreting, evaluating, commenting, stimulating thought	Facilitator Manager	Normal part of teaching—normalised	Tool for learning Normalised integrated into syllabus, adapted to learners' needs *Analysis of needs and context precedes decisions about technology*	Smaller part of every lesson	In every classroom, on every desk, in every bag

Bax (2003) and Warschauer's (2000) views on the progression through time and the nature of the system of online language learning are relevant to the Aviation English discipline. This is because course designers and teachers need to understand what CALL looks like in the 21st century and what restricted, open and integrated CALL content affords the learning context. Warschauer (2000) describes a social-cognitive view of language and authentic discourse as the principal use for computers in the 21st century and we can make connections here with the need for social presence (Akcaoglu & Lee, 2016). The principal objectives through time that Warschauer's (2000) reports are

accuracy (1970's-1980's), fluency (1980's – 1990's) and agency (21st century) and this links to the view of Xue (2017) that efficacy (agency) is an important contributing factor of student motivation.

Looking towards a more contemporary view, Arnó-Macià & Mancho-Barés (2015) looked at CLIL (Content and Language Integrated Learning), which has an increased presence in universities. They analysed programmes at Catalonia University. Using a qualitative approach, they triangulated data from university policy, observation of CLIL classes and surveys of lecturers and students. Findings showed that there are opportunities to collaborate and to adapt course content to include and integrate English for Special Purpose (ESP). Where there were opportunities to collaborate with content-based course designers, the courses became more responsive to a discipline and communicative needs of the students. They discovered that, while the institution 'said' they were using CLIL, it was not always true CLIL. It was viewed that institutional polices and course programmes and credits were not always designed to allow for integration of CLIL and it was recommended that institutional policies be changed to allow for the true integration of ESP into course content. This is seen as an opportunity to engage in a wider multi-disciplinary activity, which in itself is the true essence of ESP. Bax (2003) highlighted the need for CALL to be "in every classroom, on every desk and in every bag" (table 2) and this corresponds with the view of Wang & Wu (2016) who provided evidence that MALL provided motivation and afforded time for the learning of Aviation English.

The literature shows that it is important for course content and design to evolve to include elements of social-cognitive content and that opportunities to learn need to be available outside of the physical space of the classroom.

2.3.1 Use of Gaming and Simulation

Gameplay and simulations are a common pedagogical strategy in language-based e-learning as well as for students interested in aviation. Reinders and Wattana (2014) looked at digital gameplay and its impact on willingness to communicate. Thirty Thai English-language learners who were students

at a university in Thailand were the participants and qualitative methods were used to gather data. Two questionnaires were the main tools applied. The students completed 6 x 90-minute sessions of a popular e-learning role-play game in English. The results showed that learners felt a number of benefits, including the lowering of barriers to learning and improved willingness to communicate. It is important to note that, while effective, some students don't like games at all (Anyageu, 2012, as cited in Reinders & Wattana, 2014). However, it was found that the games provided an opportunity for learners to practise the target language outside of class time because they wanted to complete tasks. There are connections to the students' motivation to participate in games: if we consider the imagery of Bax (2003), who referred to having the position of CALL "in every classroom, on every desk and in every bag" (table 2), and link this with the findings of Wang & Wu (2016) around the positive motivation students gained by participating in MALL, the use of gaming and simulation has a fit with Aviation English teaching and learning.

Gamification has been defined by Hamari et al (2014) p 2, as "a process of enhancing services with (motivational) affordances in order to invoke gameful experiences and further behavioural outcomes". They reviewed the literature from peer-reviewed empirical studies on gamification and created a framework that examined the effects of gamification. The review of the literature and application of the framework concluded that gamification has a positive impact on student motivation but added a caveat with regard to context and student learning style.

Ranchhod et al (2014) looked at a specific game that was used in an education context. This was Markstrat simulation game. One of the key findings was that we need to understand the difference between a game and a simulation. In order to ascertain if an activity was a game or a simulation, Ranchhod et al (2014) used the Lewinian Model (Kolb, 2000) which measures the student-centred nature of the activity, the process of discovery and whether defined games were a goal-directed competitive activity with a large range of dynamic relationship variables. In a review, Ranchhod et al (2014) found that both games and simulations are compatible with language learning and, if

effectively integrated into course design, can enhance the learning process and student motivation. This literature review and research are relevant to Aviation English learning because many students of aviation actively use or have used aviation simulators or games for leisure and a good deal of aviation course content is delivered in a simulation environment.

What do we know about the impact that game-based simulations have on language acquisition? Meihami et al (2013) worked with Iranian naval cadets who had Persian as their first language and who were learning ESP for the purpose of gaining a Navalman's licence which is a requirement for operational naval cadets. The study used naval simulation games as the experiential-based learning activities in the course and evidence was provided that the use of the games improved both pronunciation and vocabulary acquisition. There was evidence of improvement in a very short time (six weeks) when students had autonomy over which CALL tools they used.

One of the challenges that should be considered with regard to simulated gameplay is, if we are to use simulation games as a place to practise Aviation English, is the lack of feedback the students will be receiving on their use of English. Does this really matter? In an Aviation English context, the accuracy of the communication is important and removing the capacity to receive immediate feedback from a teacher could limit the student's English accuracy. Kim (2015) completed a study using design-based research with 20 participants, running two simultaneous classes. The students were from Chungwhang Middle School in South Korea. A tool was developed for data analysis and allowed for a system of categories (Communication for Action) that fed into a coding scheme. The data was then collated to give insight into patterns of communication. It was found that, when students were working in a virtual world on specially designed quests, they were engaged and there was evidence of quality teaching and learning. However, it was found that the quality and accuracy of the English was loose, although students did manage to communicate and make themselves understood.

The literature shows that gamification is a useful tool when considering elements of Aviation English course design and it has the potential of provide social presence opportunities, which are important in ensuring learning motivation in a language learning context (Akcaoglu & Lee, 2016).

2.4 Aviation English

Reviewing the Aviation English literature is important, as we need to get a view of the current situation around the challenges and capabilities of this ESP field. If we consider this in terms of the aviation safety environment, the important function of non-standard phraseologies and non-standard communication is to be able to communicate situations and solutions. To do this, communication needs to happen. While it doesn't really matter if grammar, pronunciation or syntax are less than perfect, when one considers the ICAO Language Proficiency Requirements (ICAO 2010, section 4.2.1) (see table 3), it is clear that, in order to achieve an operational level 4 standard, there is a requirement for sound basic grammatical structures and sentence patterns. There is some flexibility in terms of errors but these must not interfere with meaning.

2.4.1 Testing and Assessment

It is relevant to look into the paradigm of Aviation English and the testing tools to order to discover more about the challenges.

The primary tool for measuring Aviation English proficiency is the ICAO Test and students are evaluated using a rubric as they participate in a range of spoken test activities (see table 3).

Table 3: ICAO Language Proficiency Requirements (ICAO Pt II 1.1)

Source: *https://www.icao.int/safety/lpr/Documents/323_en.pdf*

LEVEL	*PRONUNCIATION Assumes a dialect and/or accent intelligible to the aeronautical community.*	*STRUCTURE Relevant grammatical structures and sentence patterns are determined by language functions appropriate to the task.*	*VOCABULARY*	*FLUENCY*	*COMPREHENSION*	*INTERACTIONS*
Expert 6	Pronunciation, stress, rhythm, and intonation, though possibly influenced by the first language or regional variation, almost never interfere with ease of understanding.	Both basic and complex grammatical structures and sentence patterns are consistently well controlled.	Vocabulary range and accuracy are sufficient to communicate effectively on a wide variety of familiar and unfamiliar topics. Vocabulary is idiomatic, nuanced, and sensitive to register.	Able to speak at length with a natural, effortless flow. Varies speech flow for stylistic effect, e.g. to emphasize a point. Uses appropriate discourse markers and connectors spontaneously.	Comprehension is consistently accurate in nearly all contexts and includes comprehension of linguistic and cultural subtleties.	Interacts with ease in nearly all situations. Is sensitive to verbal and non-verbal cues and responds to them appropriately.
Extended 5	Pronunciation, stress, rhythm, and intonation, though influenced by the first language or regional variation, rarely interfere with ease of understanding.	Basic grammatical structures and sentence patterns are consistently well controlled. Complex structures are attempted but with errors which sometimes interfere with meaning.	Vocabulary range and accuracy are sufficient to communicate effectively on common, concrete, and work-related topics. Paraphrases consistently and successfully. Vocabulary is sometimes idiomatic.	Able to speak at length with relative ease on familiar topics but may not vary speech flow as a stylistic device. Can make use of appropriate discourse markers or connectors.	Comprehension is accurate on common, concrete, and work-related topics and mostly accurate when the speaker is confronted with a linguistic or situational complication or an unexpected turn of events. Is able to comprehend a range of speech varieties (dialect and/or accent) or registers.	Responses are immediate, appropriate, and informative. Manages the speaker/listener relationship effectively.
Operational 4	Pronunciation, stress, rhythm, and intonation are influenced by the first language or regional variation but only sometimes interfere with ease of understanding.	Basic grammatical structures and sentence patterns are used creatively and are usually well controlled. Errors may occur, particularly in unusual or unexpected circumstances, but rarely interfere with meaning.	Vocabulary range and accuracy are usually sufficient to communicate effectively on common, concrete, and work-related topics. Can often paraphrase successfully when lacking vocabulary in unusual or unexpected circumstances.	Produces stretches of language at an appropriate tempo. There may be occasional loss of fluency on transition from rehearsed or formulaic speech to spontaneous interaction, but this does not prevent effective communication. Can make limited use of discourse markers or connectors. Fillers are not distracting.	Comprehension is mostly accurate on common, concrete, and work- related topics when the accent or variety used is sufficiently intelligible for an international community of users. When the speaker is confronted with a linguistic or situational complication or an unexpected turn of events, comprehension may be slower or require clarification strategies.	Responses are usually immediate, appropriate, and informative. Initiates and maintains exchanges even when dealing with an unexpected turn of events. Deals adequately with apparent misunderstandings by checking, confirming, or clarifying.

Firstly, let's consider the relevance and indeed the effectiveness of the ICAO Language proficiency assessment (ICAO 2010, section 4.2.1). Alderson (2011) questions the validity of the testing instrument, stating that it is not adequately monitored and that we can have little confidence that a pilot or ACT with lCAO level 4 has in fact reached the required standard for safety.

Santos, Pacheco, Reyes, & Vargas (2018) looked at students' and teachers' perceptions of Aviation English in Salinas, Ecuador. The participants were 15 flight instructors who had been selected to complete a module of Aviation English. They had all previously qualified with a bachelor's degree in

Aeronautical Science but they had not previously been required to demonstrate a capability in English. A mixed methods approach was used with a 'mock' English test being administered and a questionnaire being completed. The results of the 'mock' test and the student questionnaire indicated that, just because students have been deemed to have prior knowledge (via the bachelor's degree taught in English) of English, it is not enough to facilitate passing the required ICAO standard. It also concluded that there was total agreement from the student participants that they would be happy to complete the course in an e-learning environment.

When looking at the ICAO's guidelines for Aviation English training ICAO (2009) recommend that a blended learning approach be used, and they suggest that evidence has shown that it improves student autonomy and skills, although they don't refer to what 'evidence' they have. ICAO (2009) recommends that classroom contact time should be used to reinforce topics and to practise skills.

Emery (2014), in an article in the Language Assessment Quarterly, questions the validity of the ICAO test and states that, if testers are not examining in a 'real time' environment, we cannot rate the test as a true measure of the ability to communicate in an authentic aviation situation. He also draws attention to the fact that, while Aviation English is the 'international language of Aviation', in countries where pilots and controllers speak a mutual language other than English there is no legal need to communicate in English. This reduces the frequency of use of Aviation English and ultimately reduces effective communication in English should the pilot or ATC need to use it.

Alderson (2010) surveyed 42 education providers who administer Aviation English testing internationally to gain data regarding which English proficiency tests were being used around the globe. Using qualitative survey tools, the results showed that 22 different tests were used across the respondent population. When considering the IELTS test (the test used in New Zealand to measure a student's ability to communicate in English for the purposes of study), Alderson (2010) concluded that it was not developed for the purposes of licensing pilots or air traffic controllers but was often used as evidence of proficiency in English for admission to tertiary institutions where instruction

takes place in English. It was also concluded that IELTS was widely used for purposes of ascertaining the level of English proficiency and yet it could not be relied upon to give a sound indication of ability in ESP. The literature indicates that the range of the most common tools used in an aviation environment for language proficiency testing are not reliable or even fit for purpose.

2.4.2 Dörnyei's Theory in Practice

The work of Dörnyei has been used as the theoretical model for this research project and literature has been reviewed that has used the DMC (Direct Motivational Currents) model for the purposes of language learning research.

Muir (2016) completed two studies using qualitative research methods to look at unexplored strands of Dörnyei's (2016) DMC model. The first study looked at the demographic (age, gender, nationality) make-up of the respondents who experienced DMC. Muir surveyed 1563 participants from 71 different nationalities and the results showed that there were no significant differences in the DMC experience across the demographics. When looking at language learning in an e-learning Aviation English environment we can look to this study to provide confidence that the demographic differences have little to no impact. The second study was a qualitative classroom intervention study that was structured around the 'All eyes on the Final Product' project framework (Dörnyei et al., 2016). A group fundraising project was the action and it was found that the group experienced successful DMC and students reported improvement in language learning and other skills during the course. The work of Muir (2016) has provided solid empirical evidence that DMC is a motivational experience that is not limited by nationalities or even contexts. The results also show that deliberate use of DMC experiences for language learners in a range of contexts supports motivation and achievement. This Aviation English research project has parallels to Muir's (2016) work and the application of Dörnyei's theory in both of the studies provides evidence that it is in fact a relevant theory for this research.

Mattei-Lownes (2018) looked at the impact of machine translation on motivation with Chinese language learners in the USA. She used the Dörnyei et al (2016) theoretical framework to explain why students are still motivated to learn a foreign language even when there are options to use tools like machine translation. It is interesting to see the DMC framework used to evaluate students' motivation when faced with a technology solution to communication challenges, and the application in Mattei-Lownes (2018) provides further evidence that the DMC framework is a sound fit for this study.

In conclusion, this literature review has looked at six strands of e-learning and the application of Dōrneyi's Theory in practice. The first was motivation to participate in an e-learning setting and the literature indicates that it is possible to create a learning environment where students will feel motivation to participate provided that there is a strong culture of student efficacy and collaborative learning present. Secondly, social presence was considered. The reviewed literature provides us with a sound degree of confidence that social presence is indeed a key ingredient in a successful e-learning environment. Thirdly, the history around CALL was reviewed and it is clear that there has been an evolution of practice in the CALL space over the last 25 years. The fourth strand in the review of literature focuses on looking at gamification and its value in an e-learning context. Then the literature on the discipline of Aviation English was reviewed and this unearthed some interesting results. There is a question about the ICAO test and if it is fit for purpose, which could be contributing to student and teacher motivations. While there is a limited amount of research to review, there is evidence that e-learning applications for Aviation English have been used and have been successful. The limited range of literature was important to note and further research is needed. Finally, literature was reviewed that showed evidence of Dōrnyei's(2016) Theory in practice and it was determined that this was a suitable framework to apply in this research project.

3 Methodology and Design

The overall goal of this research is to ascertain if students will be motivated to use a non-face-to-face e-learning platform to build English language competency and to reach the prescribed standard of Aviation English. It aims to explore student engagement and identify the components that will have the best outcome.

Mixed methods have been used to extract data. The qualitative methods used were interviews, a survey and researcher journal entries.

This chapter begins with the account of the researcher. This research was initially designed around a participant design-based research project in an Aviation English context. This research approach was not able to proceed because the researcher experienced some challenges gathering a cohort and now these challenges form part of the data for the revised project. The researcher kept a journal that describes the research journey.

3.1 Researcher Account

The researcher is an EFL and English/oral language teacher with 22 years' experience working in face-to-face and blended adult learning contexts. The researcher's story began in 2017.

In the two years prior to 2017 the researcher (I) had been contracted by a New Zealand aviation education provider to deliver the Aviation English component of the international aviation training course. The researcher was interested to see if this programme could be taught exclusively in an e-learning context. Discussions with the head of training and the organisation's training team followed and it was decided that the researcher would complete a Master of Education with an e-learning endorsement with the research project focusing on the general question: "How does an e-learning Aviation English course allow students to reach the required standard of English for aviation safety?"

This led to the sub-questions that were focused then on evaluating student motivation to participate along with success in an e-learning environment. I had previously had a class of six Chinese students

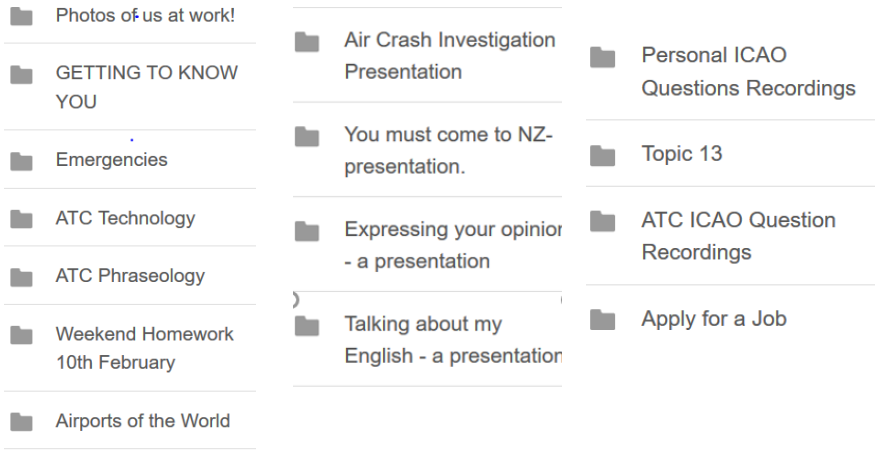
who participated in the course utilising a blended learning approach. Five out of the six students passed the ICAO test on the first attempt and this deemed the approach to be successful. I wondered if it was really necessary to have a face-to-face teacher in an Aviation English classroom at all.

In the blended e-learning course I had studied and taught, I had designed a course using Moodle Learning Management System (SMS) (see figure 3) that followed an inquiry model of learning and allowed students to select areas of aviation and activities that they were most interested in. It also included practice speaking test questions and had the facility to record and have answers reviewed and feedback given by the teacher. Students completed these tasks in their own time and also during timetabled classes. All the students in my course actively used the Moodle course to complement our classroom activity. All the modules had speaking and listening components.

Figure 3 *Online component of Moodle blending Aviation English Course designed by the author.*

Source: learn.professionalspeaking.co.nz

AVIATION ENGLISH **MOODLE MODULES**



In 2018 the research project was designed, ethics approval gained and I had started to design the course that would be taught in a fully e-learning context. This was to include synchronous and asynchronous elements and would incorporate aspects of the previous blended content that I had used.

The training organisation then advised me that, due to changes in student intake, they wouldn't have any students available to offer the course to. I then decided to make an approach to another training organisation to see if they would be interested in participating in the research project. After several meetings, they decided that they would be able to offer optional participation to a cohort. In preparation for teaching the course, I devised a short survey for the existing students at the training organisation to complete. This was to provide me with some insight into their perspectives around Aviation English.

Shortly after this, the second training organisation advised me that no NZ cohort would be available but there would be a group starting in the UK that they would be happy to offer the project to. Finally, I had a class to teach.

The aviation students in the UK were mostly from the United Arab Emirates and had travelled to the United Kingdom to complete the initial stages of training. It was assumed by the training organisation that they would be very pleased to take part in a course that would improve their Aviation English. I was given the students' contact details. The training organisation sent the students the information letter about the course and we decided to enrol them on the course and then we would send through the research information letter and consent documentation.

I contacted the students via email and I had a very poor response (just two replies) and no enrolments/logins to the Moodle. After several attempts I contacted the training organisation to let them know that I had not been able to enrol any students at all.

The training organisation thought that this would most likely be because the students were very busy with their course work and could have been feeling overloaded. This was around the time of the Cambridge Analytica data scandal incident[1] that occurred in early 2018. The training organisation suggested that this meant that the UK organisation and the students were reluctant to

[1] Facebook exposed data on up to 87 million Facebook users to a researcher who worked at Cambridge Analytica, which worked for the Trump campaign in 2018. https://goo.gl/sdf1pN

share student information with a third-party provider (me). It was also possible that the students were not responding because it was not a 'compulsory' part of their learning programme. The training organisation seemed to be most interested in building the e-learning course in order to improve English communication and to facilitate a student-lead delivery outside of the face-to-face classroom.

It was difficult to ascertain for certain why I was having difficulty getting students to participate but they were not motivated to study in an e-learning context and to incorporate a programme of study that would support their ability to communicate effectively in English. This was frustrating but led to a growing question about why the students didn't have the motivation to participate. I had a hunch that there were two things in play here. Perhaps there was a lack of motivation about the subject itself and perhaps the students didn't see Aviation English as a priority learning area. Secondly, perhaps they couldn't make a connection between language learning and an e-learning context. If they couldn't imagine it being motivating and the course providing results for them, why would they voluntarily spend time participating?

The option to design and teach the course was abandoned and the research project was redesigned.

In the redesigned study, I expanded the sample to include both training organisations. A survey of participants, focus group discussions and interviews were planned and the project methodology was altered accordingly.

As described later, a total of 210 surveys were sent out and I received 21 responses.

I then arranged a series of focus groups with students from the second training organisation. Despite my organising these at a time that would fit in with students' schedules, only scheduling 40 minutes so as not to be too onerous and providing the information well in advance, no students arrived for the focus group. After recovering from my disappointment, I began to question why

students did not want to participate. I wondered if there was something about Aviation English that they were afraid of. Did they think their English wasn't good enough?

Many of these students completed the survey but weren't prepared to meet in a face-to-face situation. Did they view a focus group as a sort of test environment? All of the students had passed the IELTS test (International English Language Testing System) and received a minimum of 6.5 rating in order to be accepted to study in NZ so, based on that, they should have strong English skills. I felt there was a disconnect here that was worthwhile examining further.

Because I was unable to get any students to engage with the project in the focus group, I also decided that I would need to get input from instructors and teachers from each organisation for this research project.

As a result, I had to change the data collection process to expand on the students' survey data by including instructor and teacher interviews. I also drew in my researcher journal as a source of data.

3.2 Theoretical Framework

Dörnyei's (2016) theory of Direct Motivational Currents (DMC) is a novel approach that has its roots in well-known major motivational theories. This theory not only views motivation as a pathway towards a goal but also states that it energises action. According to Dörnyei (2016), traditionally the motivation of second language learners is represented by the 'motive-cause-behaviour' action. A learner has a motive to learn the language - in this case, the motive is to become an aviator - thus the cause is the 'reason', i.e. that the student can reach the required standard and pass the test. The behaviour is the outward action - in this case, the 'doing' or 'attending' Aviation English classes or completing tasks.

DMC propounds that the initial motive becomes part of the motivation. Learners do not 'use up' motivation but ongoing and increased motivation is generated by the initial motivation. Dörnyei (2016) suggests that, when DMC is applied in an L2 learning environment, it allows learners to outperform expectations and it will create a long-term engagement across time and ability. If we are

to consider that Aviation English is not, in principle, a true second language but take the position that it sits more comfortably in the English for Special Purpose (ESP) space, adopting the DMC model has a strong fit. Some aviators may only ever use English for the purpose of aviation. It is sensible to assume that they are motivated to reach the required standard for the purpose of passing the ICAO Language Proficiency Test and, more importantly, it is highly likely that they will be strongly motivated to ensure the safety of passengers and also themselves (in the case of a pilot). This motivation to communicate effectively for the purpose of safety must be ongoing, through to and past the time when the ICAO Proficiency Test has been completed and passed. DMC is about exposing a powerful drive that develops over time, that grows and gains momentum as it continues to develop.

When looking at Dörnyei's (2016) examples it is easy to create a narrative with a similar theme for Aviation English students. Trainee pilots and air traffic controllers are motivated to become fully qualified so they can get a position in a good airline or location and so they can have a job that fulfils their career objectives. They know they have to reach the required standard for Aviation English and view this as a 'requirement' - a pill to be swallowed, if you like. Aviation English is not the reason they study aviation: anecdotally, it is not a subject they look forward to participating in. Their motivation is to meet the required standard and then not have to do it again. Imagine if the course they took provided them with the motivation to do more than just meet the standard. Perhaps it would have the ability to connect them with other aviators and to improve their grades in other areas of their aviation studies. Over time they achieve and gain more than they ever imagined they could. At this point we can say they have highly developed motivational currents. DMC is different from the ongoing motivation of a focused student. "It is a highly intense burst of motivational energy along a specific pathway towards a clearly defined goal." (Dornyei, 2016). It is perfect for long-term projects and can provide the basis for long-term motivation. In reality, students of aviation will be

distinctly advantaged, as will the safety of the industry, if long-term motivation to have a high standard of Aviation English is present.

How can we confirm DMC's fit with this research project?

Dörnyei (2016) defines five key elements that need to be present:

1. Goal and vision orientedness: in this case, the ICAO Proficiency Test.
2. Salient and facilitative structure: there must be a clear starting point and clear reason for the motivation. In this case the learner cannot achieve the greater objective without it.
3. Participant ownership and 'perceived behavioural control': in this case the learner must understand the need to achieve and also believe that they have the ability to achieve it.
4. Clear perception of progress: learners must be aware of their progress towards the goal and continual feedback on progress is required.
5. Positive emotional loading: learners must view all activities as useful and meaningful even if they are not totally pleasurable. They want to experience something new and have new opportunities open up.

All of these steps can be incorporated into research design.

Table 4: *Seven possible project frameworks* ***Source:*** *Dörnyei (2016)*

Seven possible project frameworks

Framework	Signature component
'All Eyes on the Final Product'	An ***end-goal*** and accompanying ***vision*** which energizes the entire project
'Step by Step'	The energising power of a 'contingent path' of ***subgoals*** (e.g. Duke of Edinburgh Awards scheme)
'The BIG Issue'	A ***driving question*** which provokes strong reactions and energises behaviour
'That's Me!'	A central topic that touches upon the ***core identity*** of the students – such a deeply personal focus cannot be planned in advance but must be captured as it emerges
'Detective Work'	An ***intriguing problem***, the solution of which sustains extended periods of concentration and motivated action
'Story Sequels'	An engaging ***temporal framework*** fixed around an unfolding longitudinal structure
'Study Abroad'	A ***vision of a foreign adventure*** which generates initial motivational momentum and sustains a systematic structure of subgoals

Looking at the possible frameworks within DMC there seems to be a natural fit with the "All Eyes on the Final Product" (table 4) and Aviation English. Dörnyei & Kubanyiova (2014) considered vision to have the greatest impact on long-term motivation. If there is a vision, day-to-day motivation can come and go (as it naturally does) but the long-term goal is maintained and eventually achieved. The key elements of creating a vision as prescribed by Dörnyei & Kubanyiova (2014) are:

1. Creating the vision
2. Strengthening the vision
3. Transforming the vision
4. Keeping the vision alive
5. Counterbalancing the vision

Based on this premise, the Aviation English student should develop a vision that includes the passing of the ICAO Proficiency Test and the view of him or herself as an accomplished aviator

whose English communication is a strong component of their skill set. This vision then leads to better participation in a wider aviation community, better employment opportunities, faster progression through the ranks and the status acquired by being known as a 'skilled and safe aviator'.

3.3 Research Design

3.3.1 Research Approach

The methodology is case study research. This research design has used the definition of a case study defined by Yin (2002) (cited in Yazan, 2015). Yin (2002) defines a case study as "a contemporary phenomenon within its real-life context, especially when the boundaries between a phenomenon and context are not clear and the researcher has little control over the phenomenon and context" (p. 13). The Yinian point of view looks at a case study as an empirical inquiry that investigates the case or cases that fit with the definition above and looks at addressing the "how" or "why" questions concerning the situation. Yin (2002) goes on to mention that this approach is most useful when looking at programme evaluation. This research was situated within two training organisations in New Zealand: one offering air traffic control training to international students and the other, pilot training to international students. The students from both organisations are usually from 3-5 different nationalities and aviation courses range from 12-36 months in duration. Students from both organisations are required to operate in English even though it is not their first language and all students are required to gain level 4 in the ICAO English proficiency test. This research asks the "how" question. "How are students generating motivation to participate in the e-learning course?"

3.3.2 Participants

As the researcher account outlines, the process of recruiting participants was complex. There were three types of participants. Table 5 outlines the data collection strategy and participants.

- A total of 210 aviation students were sent the survey using the University of Canterbury Qualtrics programme. There were 21 responses.
- Five aviation teachers were approached to give interviews - three agreed.

- The researcher journalled throughout the project.

***Table 5**: Data collection themes and summary of data sources/collection approach Source: Full survey and interviews.*

TYPE(S) OF DATA					
INTERVIEWS	**Participant**	**Number of Interviews**	**Interview/Journal Time**	**Setting**	**Response**
	Aviation teacher/manager	1	32 minutes	Skype	
	Aviation teacher	1	45 minutes	Skype	
	Aviation Teacher	1	34 minutes	Face-to-face	
	Aviation teacher/manager	0			No response from interview request
	Aviation teacher	0			No response from interview request
RESEARCH JOURNAL	Researcher/ESP teacher	1	32 journal entries 17th May 2018-20th September 2018	Written account in an electronic journal document	
SURVEY	Air traffic control students, air traffic controllers, trainee pilots.	210 sent the survey 21 responses			

3.3.3 Sequence of Data Gathering

A researcher journal was being documented throughout the project. It helps to track themes and it takes the place of participant observation field notes. It captures data that occurs outside the more formal interview/survey process. Ko (2012) used an instructor observation journal and believed that this gave him access to data that he would not be able to gather from interviews alone. Taylor et al (2015) outline the value of the researcher keeping up-to-date and regular journal entries (just like a personal diary) and state that a researcher journal can serve several purposes. They state that the journal entries are important in guiding interview questions as well as for the interpretation of data at a later time. Data collection of this project spanned nearly five months and the researcher journal provided a depth of perspective around the planning, preparation and delivery of the data collection process and its challenges. This journal supported the formation of interview questions, worked to identify themes and assisted in the interpretation of the data. The journal data was analysed using Dörnyei's themes and triangulated with the interview and survey data.

3.3.3.1 Data Collection Timeline

The key dates documented in the researcher journal indicate the key action in the data collection timeline.

2017 – Researcher journal started

25th April 2018 - Interview and focus group questions designed

26th June 2018 - Survey designed

25th July 2018- Survey delivered via email by the training organisations

27th July 2018 - Focus group interviews attempted. No attendees.

9th August 2018 - Interview completed by three teachers who were invited.

3.3.4 Designing and developing themes and questions

The questions for the interviews and the survey were designed simultaneously. These were driven by Dörnyei's (2016) five key elements (table 6 and 7): goal and vision-orientedness; salient and facilitative structure; participant ownership; clear perception of progress; positive emotional loading. Questions and sub-questions were devised using these key elements and these were used during the informal interview process (table 7). These elements were also used to develop question groups in the survey (table 6) and link directly to the research questions.

Table 6 Dörnyei's key elements and corresponding survey questions. *Source: Survey questions.*

DORNYEI'S ELEMENT	**SURVEY QUESTION**
GOAL AND VISION ORIENTEDNESS	Why did you choose to study aviation/air traffic control?
	Thinking about the requirement to study Aviation English - what are/were your feelings towards this subject?
	Before you started the Aviation English Course, how well did you think you would achieve?
	If you have finished a course - how did you do?
	At times you may have felt unmotivated to study. What did you do to improve your motivation to study?
SALIENT AND FACILITATIVE STRUCTURE	Thinking about learning Aviation English, please rate in order the areas you are most interested in learning or getting better at.
	In your opinion, what is the best way to learn Aviation English?
PARTICIPANT OWNERSHIP	Thinking about your Aviation English study - how did you maintain motivation to complete the course?

	Thinking about what motivated you to study Aviation English - please indicate which of the following motivated you:
	Who do you think has the greatest impact on your success?
CLEAR PERCEPTION OF PROGRESS	How do you know you are improving?
POSITIVE EMOTIONAL LOADING	How does it feel when you know you are improving? If you were to study Aviation English in an online environment, what things do you think should be included in the course?

Table 7 Dörnyei's key elements and corresponding interview questions. *Source: Interview questions.*

THEMES	QUESTION	SUB-QUESTION IF NECESSARY
GOAL ORIENTATEDNESS	Why do you think most students choose to study aviation/air traffic control?	
	What do you think they understand about the Aviation English requirement before they start?	What do you think they feel about having to pass an Aviation English test?
	How motivated do you think students are to do well in speaking Aviation English?	Is Aviation English a priority for them?
SALIENT FACILITATIVE STRUCTURE	Let's talk about the sorts of things you think interest the students about aviation.	What subject areas do they engage with most easily?
	In your opinion, what do you think is the best way for students to improve their Aviation English?	
OWNERSHIP	Do you ever notice it is hard to motivate students to speak English?	What sorts of things demotivate them? What sorts of things do they do to keep or increase their motivation?
	Who do you think are the people that have the greatest impact on student success?	
	If we think about studying in an online environment, what are some of the things that you think would keep them interested and	Do you think that students could be successful studying Aviation English in an online

	motivated? I'm thinking about things like gaming, social media, chat forums etc.	environment without a face-to-face teacher? Whose responsibility do you think it is to provide learning opportunities in Aviation English?
PROGRESS	How do you and your team know that a student's English is getting better?	
POSITIVE EMOTIONALITY	What positive impact do you see for students who have good Aviation English?	Do you think they understand the reasons why it is important to have good Aviation English?

3.3.4.1 Conducting Interviews

Dilly (2004) refers to the art of interview as collecting more than just facts. It's the "art of hearing data" (Rubins, 1995, as cited in Dilly, 2004). It's about employing social, mental, physical and communication skills to collect data, and putting it together to create the message. In addition to planning and developing the question themes, these other useful instruments of interviewing were incorporated.

Steps in the interviewing process:

1. Interview questions and themes planned.
2. Aviation teachers were identified through the aviation schools. Key administrators were asked to provide the names of people who may have been able to be interviewed and these people were approached by the researcher. In total five people were approached and three agreed. The two that didn't participate did not respond to email requests and follow-up so it was taken that they were not interested in or available for participation.

3. Met with the teachers to conduct interviews. Two of the interviewees are both teachers and heads of department within the training organisations they represent. One was from the ATC training organisation and one from the pilot training organisation. The third interviewee is both an ATC and pilot trainer. All interviewees have significant experience teaching and working in the aviation industry. There was rapport-building time where we chatted about work in general, what's been happening for students and for them, some sharing personal information and discussing their experiences so far. The participants were interested to chat about the research project and general aspects of university enrolment as they had participated in research projects before themselves.
4. Glesne & Peshkin (1999) also suggest that the best way to record the interviews is with an audio recording. These interviews were recorded using an iPhone and Zoom application. The participants were asked if they were happy to have the interview recorded and all of them agreed to this.
5. The planned questions were all asked during the interview session; however, where interviewees wanted to add information or go off and talk about something other than the question the interviewer allowed this to happen. The questions were semi-structured and the interviewees were able to talk freely. The planned questions were asked and answered in the natural flow of the conversation.

3.3.4.2 Designing and administering the survey

Once the survey questions had been designed and created, the questions were loaded into the University of Canterbury secure Qualtrics survey software programme. This was then tested by sending out a dummy email and a mock answer to the researcher so that the researcher could evaluate the quality of the reports, the clarity and order of the questions. The information sheet and consent form were included as the first section of the survey. The survey was then sent to two administrators at each training organisation so they could be forwarded to the identified cohort. The administrators advised the researcher via email of the number of surveys that were emailed out

and these totalled 210. These were sent out on 6th August 2018 with a follow-up reminder sent out seven days later.

3.3.5 Researcher Journal

The researcher kept an e-journal of events throughout the design and data collection process. Journal entries were made when something significant happened and a total of 32 journal entries were made from 17th May 2018 until 20th September 2018. The researcher recorded actual events, conversations and relevant emails, as well as feelings and hunches about the process and data collection.

Figure 4 Example of Researcher Journal ***Source****: Researcher Journal p2*

10th November 2019- I had a meeting with the training organisation heads of department. They were positive about the project and it seems to me that they feel similar pain to [redacted] this space. They have a lot of students and they turn them over quickly so it must be possible to get some of them to enrol on my course and be part of the project. I had a big look around the organisation and spent some quality time talking to an experienced instructor. I also watch a class in action. It was very interesting to see that the classroom set up

2 Other training provider.

3.4 Data Analysis

The essence of the qualitative data collection was coding themes from transcriptions taken from the recordings, questionnaires and journal notes. Hamid et al (2015) suggest that the researcher read the transcripts multiple times, recording themes in the margin of the transcripts manually, and this was the action of the researcher. Over time and using the Creswell (2013) data analysis spiral, the themes emerged, contrasts were noted and a firm set of themes evolved. The transcripts were read over multiple times as Mills and Morton (2013) discuss the importance of immersing oneself in the research, and the analysis of the data will require that.

3.4.1 Data Analysis Process - Interviews

1. Transcribing interviews. The interview recordings were professionally transcribed and then checked against the recordings by the researcher.
2. The data was summarised by reading and re-reading the transcripts and the researcher made notes in the margins to indicate key ideas as they emerged (figure 5). These key ideas were then developed into codes and the codes were sorted into emerging themes (table 8).

Figure 5 Example of interview coding. ***Source****: Interview transcript*

Transcript		Code
150	someone who's done it before, or come up with a question	
151	bank, or some sort of strategy to pass the test, and that's what	Test is easy to pass if you practise it-
152	most people do. While I do agree that there should be some	not a test of real English skills
153	sort of standard for aviation English, I think the testing methods	
154	at the moment are a little bit flawed, due to the fact that people	Test flawed
155	will do just about anything to pass the test, rather than actually	
156	being able to speak English properly.	
157	Facilitator: So, you're saying to me that their motivation is	
158	to pass the test - not to improve their communication skills?	
159	Participant: No, and that's because it's a licensing	Motivation – licencing requirement
160	requirement. That's why they do it.	not to improve English

Table 8*:* Illustration of coding leading to themes and Dörnyei's Elements (2016)

Source: *Aviation teacher interviews October 2018*

A summary of data from the interview transcripts – a researcher memo

No understanding of aviation English requirements when starting out Most training organisations don't timetable Aviation English	Aviation English becomes priority if they start struggling with the academic work	Students rely on each other and the best English speakers talk for everyone	Motivation is to pass the minimum standard. 20-30% want good English, rest want to pass the test. Meeting minimum standards is the motivation Meeting a standard is their motivation	IELTS scores are not reliable. No trust in the test	Practical tasks will work best online.	Basic literacy can be a problem with international students	Having an aviation English teacher means they build strong standards	Recording and listening to yourself would be a great too

Codes to themes

THEMES ARISING FROM THE INTERVIEWS AND SURVEY								
LACK OF COMMUNICATION FROM THE TO ABOUT AE IMPORTANCE	Interview: STUDENTS DON'T SEE AE AS IMPORTANT Survey: STUDENTS THINK AE IS IMPORTANT	TIME PRESSURES DON'T ALLOW FOR SOLID STUDY OF AE	LACK OF DMC Direct Motivational Current	PERCEIVED ISSUES WITH THE TESTING	PRACTICAL AND VISUAL ACTIVITIES ARE PREFERRED	AE IMPACTS OPERATIONAL COMPETENCE	HAVING A REAL TEACHER IS IMPORTANT	ONLINE LEARNING REQUIREMENTS

Themes to Dörnyei's Elements

THEME LINKS TO DORNEI'S DMC MODEL								
OWNERSHIP	PARTICIPANT OWNERSHIP POSITIVE EMOTIONALITY GOAL ORIENTATEDNESS	PROGRESS	GOAL ORIENTATEDNESS PARTICIPANT OWNERSHIP	PROGRESS POSITIVE EMOTIONALITY GOAL ORIENTATEDNESS	POSITIVE EMOTIONALITY	OWNERSHIP SALIENT FACILITATIVE STRUCTURE (task based, collaboration)	POSITIVE EMOTIONALITY	OWNERSHIP POSITIVE EMOTIONALITY SALIENT FACILITATIVE STRUCTURE (task based, collaboration)

The survey questions were individually analysed and grouped/linked as themes arose

3.4.2 Data Analysis Process – Journal

The researcher journal was coded and these codes were sorted into emerging themes.

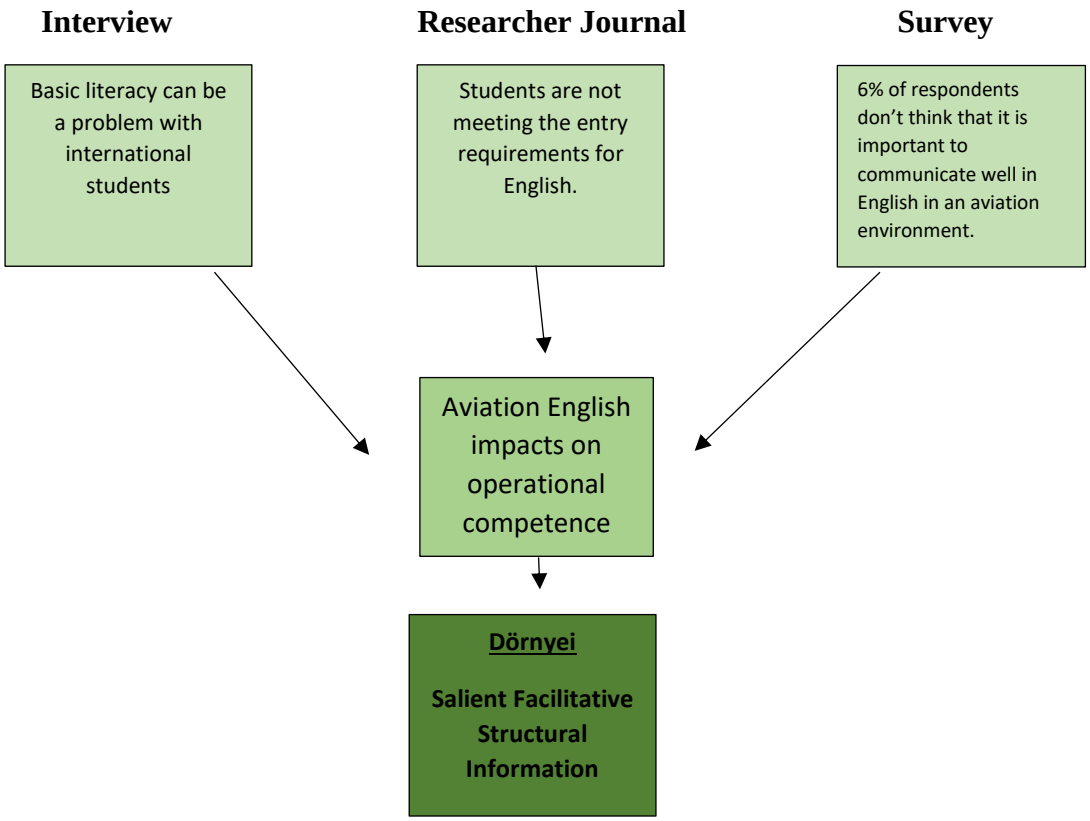
Figure 6 Example of researcher journal coding ***Source**: Researcher journal p3*

Journal Entry	Code
So, to wrap up- • *You are going to check out the number of individuals we can enrol on the course (the more the better) and they can be either students arriving in NZ or the UK.* • *I will draft up an enrolment 'letter' that I will send through to you that will be from you guys about the course and it will in allow them to enrol on the course. I will get this letter to you on Monday 26th March.* • *You then share with me the contact details of all those who have been asked to enrol.*	Confirmation of cohort Commitment of the training organisation to the research

3.4.2.1 Triangulation and theme confirmation

The data from interviews, surveys and researcher journal was triangulated and the key themes were identified (see figure 7).

Figure 7 Example of theme triangulation. Source: Interview transcript, survey answers and researcher journal



3.4.2.2 Presenting the findings

The findings are presented according to Hamid et al.'s (2015) method of initially identifying the main themes and then discussing each of these further, using examples from the transcripts. The use of tables combined with author discussion and backed up by examples, as used by Hamid et al. (2015), ensures the examples are clear and concise (Taylor et al., 2015).

3.5 Ethical Considerations

It is important to consider and implement action that will ensure that the participants' safety is considered at all times. The ERHEC (2017) refers to five ethical norms that all research must adhere to for the training organisations and the University of Canterbury:

- Have the informed consent of participants;
- Guarantee confidentiality of data and individuals;

- Avoid unnecessary deception;
- Minimise risk to all participants;
- Be consistent with Treaty of Waitangi obligations.

There were three key potential challenges with the design of this research project in terms of ethics. These are maintaining anonymity, cultural safety (Mutch 2005) and ensuring that the power balance is not dominated by the researcher. The participants were given information about the research (see appendix 15.2) and were asked to agree to the conditions of the research in a consent form (see appendix 15.2).

Confidentiality and anonymity may be breached during the coding, analysing and presentation of findings. This project has a small number of interviewees and it is important to work to maintain their anonymity. Where necessary, pseudonyms to protect interviewee identity and randomisation during coding ensured that it would be difficult to identify the responses from one interviewee. By coding the data into themes, it is much more difficult to identify who has answered. The University of Canterbury ethics application states that data up to Masters level is to be kept for 5 years and then destroyed.

3.6 Trustworthiness and Rigour

As part of the research project planning process, it is important to consider the potential issues around rigour and trustworthiness of the data.

The first action to secure trustworthiness and rigour is to ensure that tidy, organised records are kept and also to provide a good account of methods and data collection/analysis processes (Bogdan & Biklen, 2007). The researcher created secure folders for all work and rework, and drafts were created and stored using a version system (eg Ethicsv1, Ethicsv2).

Secondly, because the project is using interviewing, survey and researcher journals as data collection tools, triangulation is a useful tool. This research used three methods of data collection and

according to Creswell (2013), if you are able locate evidence of a code or themes from different sources of data, you are providing validity to your findings. The three methods of data collection were triangulated to confirm the validity of the data. Ko (2012) used triangulation to confirm the validity of the data collected by using interview transcripts, learning journals and instructor observational journals. While triangulation can be difficult to do well (Barbour 2001), it is possible with well-designed interview questions and questionnaires that provide similar direction. All the questions used in the survey and interviews were designed around DMC Theory (Dōrynei 2016) and this allowed for easy triangulation. The researcher journal was coded with a view to the DMC Theory (Dōrynei 2016).

There is the risk to rigour that is based on subjectivity by the researcher when coding the data. The concept of 'inter-rater' reliability is discussed by Barbour (2001). While it was not possible (because of resources) to get an independent researcher to code whole sets of data to check rigour, the researcher shared her coding sheets with one supervisor and they met online with a shared screen of the coding framework and data to discuss the process and clarify the interpretation thereby endeavouring to minimise subjectivity.

4 Findings

The findings give an insight into the challenges around implementing an e-learning approach to Aviation English. These findings have been grouped into three key areas: challenges with Aviation English, Motivation, and Perceptions of e-learning. These key areas present data from the researcher's journal, the student survey and the interviews.

Research participants: Interview—3, Researcher—1, Survey Respondents—21.

4.1 Challenges with Aviation English

Credibility and motivation are intrinsically linked and it is important for the purpose of this research to look at the results with regard to the credibility of Aviation English and the related tests.

There is evidence that there is a lack of credibility and trust in the two tests that students need to undertake in order to reach the required standard for operational Aviation English.

"I don't believe their [IELTS] results are always reliable."

(Interviewee A, August 18).

The first is the IELTS test (International English Language Testing System). The second test is the ICAO (International Civil Aviation Organisation) test of English for aviation.

"I realised that day, the actual test [ICAO] itself is a little bit flawed as well…."

(Interviewee B, August 2018)

While interviewees were not directly asked about their belief in the credibility of either test, they raised it as a concern in related questions. Interviewees A and B both questioned the validity of the ICAO and IELTS tests. Interviewee B had a strong doubt about the validity of the tests and voiced a number of other concerns, including issues around the business model and the approach. Interviewee C was less emphatic but questioned their relevance.

"….improving your IELTS score is not really that relevant to an Aviation English context."

(Interviewee C, August 2018)

None of the interviewees suggested that Aviation English shouldn't be tested but none highlighted the positive aspects of the current testing approach (see figure 8).

Figure 8: Testing of Aviation English **Source**: Aviation teacher interviews

When Aviation teachers were asked:

In your opinion, what do you think is the best way for your students to improve their Aviation English?

"[Being] immersed in general English. I don't believe their [IELTS] results are always reliable. There is a correlation between IELTS and Aviation English. A lot of the testing; it's really just a speaking test, so it's being able to listen to the questions and speak." – *Interviewee A*

"Something that would be weighted towards improving your IELTS score is not really that relevant to an Aviation English context." – *Interviewee C*

What do you think aviation students understand about the requirement to speak Aviation English before they start? Do they have a knowledge of it? Is it a priority?

"Most people, when they actually start air traffic control training, or even part of the training, they have no idea they even have to sit an Aviation English test, and they don't care. Once they find out what it is, then what they do is they'll do just about anything to pass the test; doesn't necessarily test their English skills at all, because you can very easily pass the test if you speak to someone who's done it before, or come up with a question bank, or some sort of strategy to pass the test, and that's what most people do. While I do agree that there should be some sort of standard for Aviation English, I think the testing methods at the moment are a little bit flawed, due to the fact that people will do just about anything to pass the test, rather than actually being able to speak English properly." – *Interviewee B*

Do they [students] build the bridge between Aviation English and aviation safety at that initial stage of training?

"Having dealt with international students, and especially having dealt with [the testing organisation], and booking their tests, sometimes I feel like it's a little bit of a revenue-generation, money-making scheme." *Interviewee B*

"I realised that day, the actual test itself is a little bit flawed as well; you could just about say anything, as long as you say it in a coherent manner. They'll give you Level 6." – *Interviewee B*

Do you think that the students understand that the test is flawed, and feel that frustration as well?

"Some do – some don't. The students that don't. The students that don't usually are the ones that's got sort of weaker English language. Most of the kids that come here to do aviation at training or ATC training, they're not stupid – they know what's going on. They're smart and they do get frustrated, and I think it's just – the bottom line is even if they fail, they will just try and do whatever they can to pass the test. That's just the reality of it." – *Interviewee B*

In the survey, students were asked to indicate which languages they spoke fluently (table 9). Sixteen out of the 21 respondents answered this question. No student said they spoke English as a first language and they listed a total of 12 different languages spoken as a first language. The most commonly spoken languages amongst the cohort were Vietnamese (4) and Chinese (Cantonese or Mandarin) (4). Four respondents (25%) didn't choose English as a language they were fluent in; however, all respondents would have passed an IELTS 6.5 in order to be accepted into the training organisation.

Table 9: What language/s do you speak fluently? **Source:** Survey Q5 *n=16*

RESPONDENT	LANGUAGE 1	LANGUAGE 2	LANGUAGE 3	ENGLISH
1	Vietnamese			
2	Chinese			
3	Vietnamese			
4	Cantonese	Mandarin		
5	Arabic			English
6	Czech			English
7	Arabic			English
8	Arabic			English
9	Gujarati	Hindi	Marathi	English
10	French	Italian		English
11	Vietnamese			English
12	Cantonese			English
13	Vietnamese			English
14	Cantonese	Mandarin		English
15	Spanish	French		English
16	Hindi			English

Table 10 IELTS Band Indicators **Source**: *http://ieltsliz.com/ielts-band-scores/*

Band Score	English Level	Description	Key Points
9	Expert User	Has complete command in the English language; accurate, appropriate, highly flexible, fluent with full understanding. www.ieltsliz.com	(1) accurate (2) full understanding
8	Very Good User	Has complete command with only rare errors (which are unsystematic) or inappropriate words. Deals with complex situations well but has rare errors in complex situations but can deal with detailed argumentation.	(1) rare errors (2) uses complex language well
7	Good User	Has good command of English but also has occasional inaccuracies, misunderstandings or inappropriate words. Can use complex language quite well and understands detailed argumentation quite well.	(1) only occasional errors (2) uses complex language quite well in most situations
6	Competent User	Has effective command of English but also has some errors, inappropriate words and misunderstandings in some situations. Can use complex language quite well but best in familiar situations.	(1) some errors (2) use some complex language which is best in familiar situations
5	Modest User	Has partial command of English and can deal with overall meaning. Make frequent errors. Has better English in common situations. Does not deal with complex language well.	(1) frequent errors (2) has difficulties with complex language

The IELTS score of 6.5 would indicate somewhere between effective and good command of English with occasional errors (see table 10). It is, therefore, interesting that, despite having achieved this score, students themselves did not rate themselves as 'fluent' in English.

Another issue around the compulsory testing is that it seems students can repeat the test as often as they need to in order to pass (figure 9) and this example from a new cohort demonstrated that many like to take advantage of this flexibility.

Figure 9: *Email received from training organisation* *Source: Researcher Journal*

"trainees due to start on the **** total * at present. Some of the potential trainees have not met the IELTS prerequisite so therefore our Recruitment and Selection Team are presently working with these trainees. It is likely that these * are deferred to a ** start; provided they will meet this prerequisite by then."

Figure 9 implies that students who are wanting to enter aviation studies, who have not been able to pass the IELTS test, will get extra support to pass the prerequisite test.

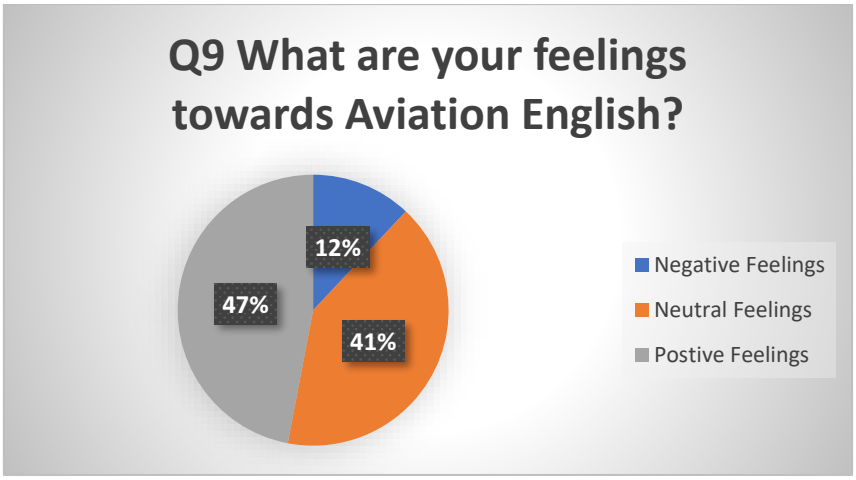
Interviewee A indicated that the view on the ICAO test was different in various countries. It was implied that the test was viewed as being easier in some other countries compared to New Zealand.

> "*They are motivated, because they will not get jobs unless they pass that ICAO Level 4 test. With the Saudis, it's compulsory; they can't leave here without it. With the Vietnamese, they*

think that it's easier at home, so they're not as motivated to pass it in New Zealand. They think the test is easier [in Vietnam]." (*Interviewee A, August 2018)*

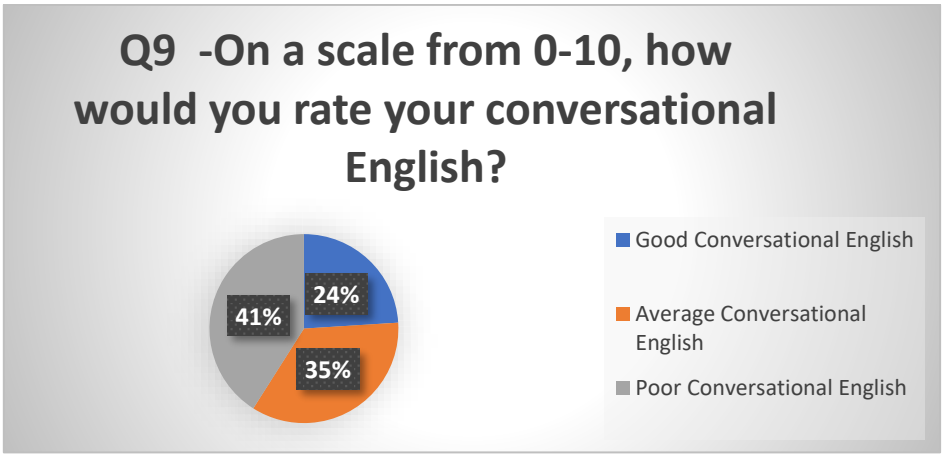
When surveyed about their feelings toward Aviation English, the majority of Aviation English students reported neutral or negative feelings (figure 10). While only 12% viewed Aviation English as negative, 41% had neutral feelings. Considering the importance of the ICAO and IELTS tests to the students' academic outcomes it is interesting to note that only 47% of students had positive feelings toward Aviation English.

Figure 10 What are your feelings towards Aviation English? Source: Survey Q10



A question about conversational English (figure 11) was asked because it is used in non-standard operations (discussions, conversations that are non-standard or out of the ordinary operational activities). Overall the majority of students self-rated their conversational English as good or average but 41% rated themselves as having poor conversational English, and when this is viewed alongside the student feelings toward Aviation English (figure 10), there are similar ratings (41% vs 47%). This could indicate that the overall perception for these students was negative towards Aviation English because they don't possess enough skill to be confident in conversational English.

Figure 11 *On a scale of 0-10 how would you rate your conversational English? Source: Survey Q9*



The issues in Aviation English arose in the interview in relation to three different questions. The first question explored teachers' perceptions of how students regarded Aviation English. This was followed with probing about failure, costs and the link between aviation safety and Aviation English. In response to this, the cost of training emerged from Interviewee C who highlighted the commercial reality.

> *"I think maybe where training organisations might fall down is the fact that they/we view regulatory minimums as targets; if someone only needs a Level 4, then that's what we'll aim for – they've met Level 4 – that's fine. So, if a provider can offer a shorter course, which will be inherently probably a bit cheaper, then there's that commercial reality for someone to choose that over another one, because whilst they're here on a course, they're not earning."- (Interviewee C, August 2018)*

Interviewee A talked about the influence of an individual's purpose in relation to the aviation industry and highlighted how for some it was a passion and for others it was seen as a prestigious career. Interviewee A mentioned the disjuncture between learning a technical language out of

context and suggested that Aviation English only really began to have meaning once the student moved to the real-world workplace.

> *"I think we find compared to the Kiwis, Kiwis just have a passion for aviation in general, by the time they get here. They're just in love with the industry, and they just want to know more. Whereas, we often hear [from the international students], 'is this in the test?'. So, we do a tour to a helicopter centre and learn about helicopters; the Kiwis lap it up, but some of the international students just think, I only want to learn it if I have to. They don't buy into the whole industry thing. Everywhere they go it's a prestigious career; they just want to learn what they need to do to pass, to get there." (Interviewee A, August 2018)*

The other question that generated comments about English competency was around students' success in the course. Interviewee A indicated that a lack of skill in Aviation English was the sole reason for some students not being able to complete their course of study.

> *"Hundred per cent [reason for failure is poor Aviation English] – that would be the main reason. The only ones that have ever not got through …… it was 100 per cent [their ability in] English." (Interviewee A, August 2018)*

All three aviation teachers talked about the importance for students of having a good grasp of basic English first. Interviewee A felt the true test of it would only come in an emergency situation.

> *"I think the biggest test for them would be in an emergency; while you're just being a robot and giving out clearances and doing your day-to-day business – but when you can't – when you have to revert to your general English to deal with the situation where you don't have the words, that will be the test of them of how well they've come, and that's the basic English first." (Interviewee A, August 2018)*

Interviewee A expanded on this problem by suggesting that students were more focused on meeting the required standard and passing rather than thinking about the reality of when and where they might need these skills. So, there is a disjuncture between theory and practice.

> *"It depends; for an international student, it's already hard enough having to learn English, and then having to learn a lot of technical jargon. Then, on top of that, doing tests to prove that you can actually speak technical stuff. So, in their mind I don't think they're actually thinking safety – especially when they're training. Maybe when they start their jobs wherever they work; then they might actually start thinking about, okay the way I deliver something – the way I say something actually affects the safety of what I'm doing. Initially, I don't think any student will actually think about that, because they're too busy trying to actually meet the minimum standard to get a licence to practice what they want to do. That's just the reality of it, and most people don't actually realise it. "– (Interviewee A, August 2018)*

Interviewee B commented on how important it was for instructors to understand where international students were coming from (in terms of what motivated them for learning).

> *"Definitely the instructors [have the biggest impact]. I think it's something that you sort of learn along the line that different students are motivated differently. Not everyone's going to be the same. The biggest sort of hurdle is to try and understand where they're actually coming from – what their experiences are. Especially for international students; if you don't have a grasp of that, you'll never get through to the students. You just won't." (Interviewee B August 2018)*

Interviewee C brought in the issue of immersion during training. They realised that it wasn't just a matter of English competency when students arrived that made the difference.

"There's two things; a) there's the baseline where they come into study at, and secondly, it's the immersion during the training. So, both those factors will play a part." (Interviewee C, August 2018)

Although this was desirable it was complicated by students' confidence. Interviewee A noted that students with better English are more likely to seek explanations in class, whereas those who are underconfident will most likely ask their peers in their mother tongue which, maybe, doesn't aid in their ability to learn Aviation English.

"[If their English is good] it's easier and that means that there will be more of a tendency for them to seek explanations in English which then betters their understanding more. So, it's quite exponential I suppose – if someone's at a low level, a) they're reluctant to engage so they'll ask less questions in class because their English is weak. Secondly, if there's an explanation, they're more likely to go to one of their peers who speaks their mother tongue for an explanation, rather than to seek an explanation perhaps with the person next to them in English." (Interviewee A, August 2018)

Overall, understanding students' past learning experiences and motivations was an important precursor in helping them develop confidence and improve engagement.

It appears that low skill in Aviation English was one main reason that students were not being able to complete their course of study. It is a compulsory requirement and without it they are not able to gain a licence to operate. Other issues were raised including emergency situations (Interviewee A), understanding about students' past experiences (Interviewee B) and engagement and confidence (Interviewee B and C).

4.2 Motivation to improve Aviation English

In figure 13, it is here that the age group differences are interesting.

For 18-20 year olds, 'passing the course' takes dominance with 'getting a good job', 'being a safe aviator' and 'being able to communicate confidently in English' all receiving equal ratings.

For 21-25 year olds, the broadest range of selections appeared, with all eight categories being selected to some degree. The highest-ranking indicator for this age group was 'being a safe aviator', followed by 'being able to communicate confidently in English' and 'passing the course'.

The 26-30 year age group had a similar configuration; however, 'being able to communicate confidently in English' was the highest-ranking marker.

The 31-35 year age group equally rated 'being able to communicate confidently in English' and 'being a safe aviator', with 'passing the course' ranking as third. 'Being a safe aviator' ranks in the top three for all age groups and would indicate that participants understand the links between strong Aviation English and safe aviation.

'Passing the course' also ranked in the top three and would indicate that participants realised that having sound English communication skills is important for getting good grades in their aviation studies. The third highest ranking indication was 'being able to communicate confidently in English' and this reinforces the students' understanding of the importance of English to their academic success.

Figure 12: *What did (or what will) motivate you to improve your Aviation English?*

Source: *Survey Q28 n=21*

AGE	18-20	21-25	25-30	30-35	36+	TOTAL
Being a safe aviator	1	7	4	2	0	14
Being able to communicate in English confidently	0	4	2	0	0	14
Getting a good job	1	5	2	0	0	8
Making friends with people who speak English	0	4	2	0	0	6
Passing the course	2	5	3	1	0	11
Pleasing my parents	0	4	0	0	0	4
Pleasing my teacher	0	3	1	0	0	4
Showing my friends and classmates how good I am	0	4	1	0	0	5

Much of this survey data gathered about student motivation to improve Aviation English (figure 13) is contrary to the viewpoints of the aviation teachers.

> *"They don't see the impact of it [Aviation English] until they're starting to poorly perform"- (Interviewee A)*

> *"No. The short answer is: on Day 1 Week 1 – no. Certainly, if you have 20 people sitting in a classroom you say, what makes an airline good, they'll say, oh a better in-flight service and cheap airfares and a few will come up with the word safe, but they won't be able to define what is safe, and what contributes to being safe." (Interviewee C)*

> *I think initially when you tell them, they're a bit put off by it, because it's just another test, but as time goes by, as they get deeper into their training, they sort of start to understand that there's a reason why there's a standard that needs to be achieved. (Interviewee B)*

> *"[Do the students understand the importance of Aviation English?] That's an interesting question. Most people, when they actually start air traffic control training, or even part of the training, they have no idea they even have to sit an Aviation English test, and they don't care." Interviewee B*

All interviewees indicate that they think students do not have a good understanding of the importance of strong Aviation English for safety or study and yet students indicated (figure 7) that 'aviation safety', 'passing and course' and 'being able to communicate confidently in English' were the most frequent motivational factors.

4.3 Areas of language learning that interest students.

As can be seen in figure 9, the 18-25 age group indicated that vocabulary, reading and writing are strong preference activities and put speaking and listening as low preference activities. It is only the 25-30 age group who indicated that speaking English is a preference activity, and yet they have all indicated a motivation to learn Aviation English for aviation safety and academic success (figure 14).

It seems that the survey participants don't see the relationship between speaking and listening to English and aviation safety or academic success.

Figure 13: The areas of language learning that students are most interested in.

Source: Q26 Survey

AGE	18-20	21-25	26-30	31-35	36+
Aviation Vocabulary	✓	✓			
Speaking English			✓		
Listening to English					
Writing English		✓		✓	✓
Reading English		✓			
Learning about Aviation in general					
Talking to experienced aviators					
Watching aviation movies and clips					
Listening to aviation stories					

Dominant selection

4.4 Where does the responsibility for Aviation English teaching sit?

When they were asked who should have the responsibility to ensure Aviation English was included in course content, the opinions of interviewees varied.

> *Not all training organisations timetable English. No, they don't. Most don't. Even ******* don't. They don't at all. Even when I did my training it was like, oh yeah there's a test - you need to prepare for it – this is what it's going to be like, but we're not in the job of actually training you for university English – you're university students - you should be able to do it. That was their sort of attitude. I don't know about now, but I still don't think ******** does it. I think they just sort of pay for the exam and it's up to you if you want to [pass]." - Interviewee B*

"Joint between the student and the organisation. It's part of that sort of training contract, if you like. Provided they're [the students] willing and able and they're going to put in the work, we'll provide the resource for them to meet the requisite standard. So, it's a joint thing. I don't think we can put it solely onto the individual, because they might not necessarily know which tools that they need to utilise to get the job done." -Interviewee A

It appears that a contributing factor to the timetabling of Aviation English is the request or approval of the aviation authority that is purchasing the training.

"Depends on the contract. Employers want them to get there at the end, and they'll just figure out the best way to get there." (Interviewee A, August 2019)

When asked why Aviation English is not always a timetabled subject, Interviewee C referred to it being inherent in the practical subjects.

"Well, we have flight radio telephony as one, which is around the standard phraseology. To some extent, the practicum component is Aviation English. So, from Day 1 Week 1 we always teach students; you must aviate, navigate, communicate. Communicate is the third but lower priority, but it's still part of the practice. So, I say it's not a specialist subject or module, but rather it's inherent across all the training we do. – (Interviewee C, August 2018).

There it seems that the inclusion or non-inclusion of explicit Aviation English in course content is not strongly influenced by student needs.

4.5 Classroom Practice in Aviation Education

The general classroom practice in an aviation context appeared to be 'chalk and talk' style.

"I also watched a class in action. It was very interesting to see that the classroom set-up is lecture style and teacher-centred in terms of practice. It was hard to imagine CLT (communicative language teaching) thriving in this classroom environment. It put me in mind of the Air Traffic Control classrooms. It seems that aviation teaching has not embraced

student-centred practice as yet. Still all chalk and talk". (Researcher Journal, 10th November 2017)

This practice is not conducive to communicative language teaching and, while interviewee C considers Aviation English to be inherent in the general aviation classroom and course materials, it is not explicitly integrated from a pedagogical perspective.

So, I say it's [Aviation English] not a specialist subject or module, but rather it's inherent across all the training we do. (Interviewee C, August 2018)

4.6 Motivation to participate in the e-learning course and the research project.

The researcher had major challenges in recruiting participants. At first it seemed that this was partly due to student intake and timetabling. Two organisations were approached and due to student intake changes it became difficult to arrange. The research journal outlines these challenges (figure 12).

Figure 14: *Challenges in gathering a cohort* ***Source****: Researcher Journal*

Researcher Journal 29th October 2017- I have just received a phone call from the ATC Training centre advising me that we will not be able to go ahead with the project using their students. The January course has been cancelled and they won't have any other students until July 2018!

Researcher Journal 5th April 2018- I am still waiting to hear back from James* about the cohort. This is so frustrating but I know he is doing his best. I can't believe how tricky this is to sort.

*pseudonym

There were significant difficulties in recruiting a cohort for this research project and notes from the researcher's journal indicate the challenges from May/June 2018 (figure 15).

Figure 15: Challenges in gaining participation in e-learning course and research project.

Source: Researcher journal

Researcher Journal: 4th May 2018 – "I have sent James the information letter and enrolment/registration details to send out the 6 students. He didn't manage to get any more interest from the airlines which is disappointing but again, it is what it is."

Researcher Journal 10th May 2018 – I am checking the enrolment platform every day to see if I have had any students enrol and not one has! I am really worried that because this isn't compulsory, they just won't bother.

Researcher Journal 22 May 2018 – After my excitement in hearing from two students, I didn't hear from anymore! So, I have just sent an email to all the students. I am thinking that if I meet with them individually on Skype I will have better success getting the enrolment process underway.

Researcher Journal 24 May 2018– I have not had any response from the students after my last email. I sent it again as a reminder.

Researcher Journal 26 May 2018 – So I waited for a student to come online in Skype and guess what? None of them did. I just can't believe it. I am now wondering what this is all about. Perhaps there is more to this than just being organised. I wonder if there is something about Aviation English that is putting them off. Perhaps it is the e-learning they are not interested in. I hope I get to the bottom of this? I will email James next week and see if he can shed any light on the situation.

Researcher Journal 1st June 2018. Response to email: "There may well be a number of reasons why this is the case but I am guessing that the main one is that these trainees have actually started their Theoretical Phase with us and now realise the enormity of the task ahead. These things take a little while now under the new General Data Protection Regulations (GDPR) which are in effect. I have prompted the right people so I hope to have a green light for you soon."

Researcher Journal 21 June 2018 – I have just had a meeting with my (supervisor) about the situation. We are in agreement that I can't really afford to wait any longer to get the course running. We worked to devise another set of data collection tools and take another approach. I will have to rewrite the proposal and get new ethics approval for the changes. I'm feeling so frustrated by this and this is becoming challenging. What else to do but soldier on!

Researcher Journal 12 July 2018 – James has confirmed the focus group date as the 27th July. "This will work better with our schedules and hopefully I can round up some good participants for you."

Researcher Journal 27 July 2018 – Today I drove the 2 hours to ******* to take the focus group discussions with the pilot training organisation. When I arrived, James was there to meet me and he took me to the classroom where the focus group was to take place. I set up the room with the chairs in a circle. We were due to start at 1pm and by 1.15 I knew that no one was coming! I waited until 1.30 and then went to find James. He was mortified that there was a complete no show and couldn't really understand why and he was clearly embarrassed. I reassured him that it was OK and we talked about what all the trouble I have had getting students to participate in the course and now the research might mean. I do think that there is more to this than just organisational problems. I am even more convinced that it is the subject that is the problem.

The researcher journal reported several vigorous and yet unsuccessful attempts to engage with students, firstly through the e-learning course enrolment and then via a focus group activity (figure 15). Both of these activities had the support of the training organisation and the researcher was

helped as much as possible by the training organisation to gather the cohort. The researcher started to think that there was more involved here than timetabling and availability issues.

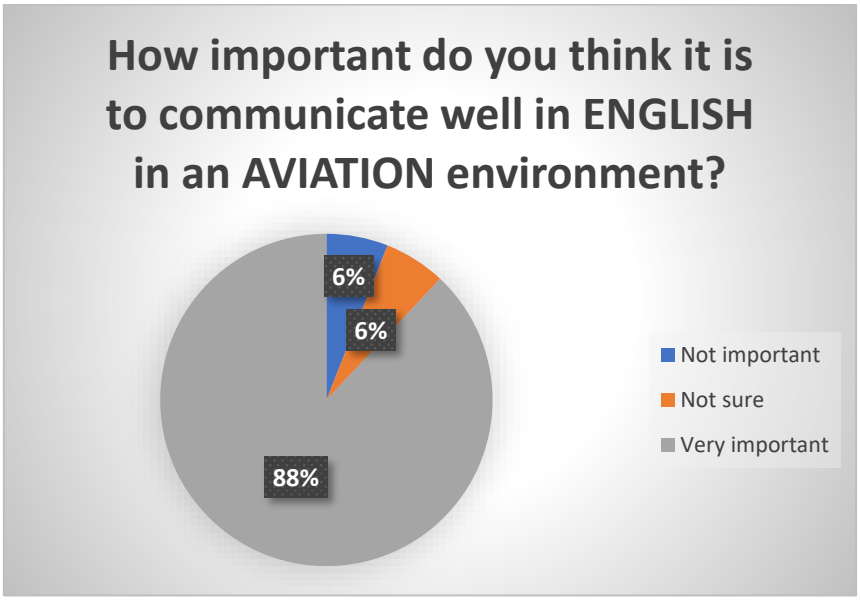
Whilst there is no direct data to explain why this was so difficult, it appeared to the researcher to be more than timing, schedules or organisational support. Initially the researcher wondered if it was related to interest but survey data from the students suggested otherwise. Another possibility was that, as an "outsider", the researcher had not gained student trust. However, it is also possible that students were reluctant to have their skills in Aviation English up for scrutiny and felt threatened by the research.

4.7 How much do students value skills in Aviation English?

The survey response to question 13 shows a strong indication that 88% of students do in fact understand how important it is to communicate well in English.

This does, however, leave 12% of respondents who didn't know if it was or didn't think that it was important to communicate well in English in an aviation environment (figure 16). This was an interesting result when considering the data around student motivation to learn Aviation English (figure 13) which shows that 'being a safe aviator', 'passing the course' and 'being able to communicate well in English' were the strong motivational drivers.

Figure 16: *How important do you think it is to communicate well in English in an aviation environment?* ***Source:*** *Survey Q13*



4.8 Students say why they study aviation.

Figure 17*: Why do students choose to study aviation/air traffic control? N=21*

Source: Survey Q11

AGE	18-20	21-25	26-30	31-35	36+	TOTAL
I am passionate about aviation	2	6	5	1	0	14
I want a good career	1	5	4	2	0	12
I want a career that pays well	1	3	1	1	0	6
My parents wanted me to study aviation	0	0	0	0	0	0
I know someone who works in aviation and I want to be like them	0	1	1	1	0	3
Other	0	0	0	0	0	0

Passion for aviation and wanting a good career are the dominant reasons for wanting to study aviation across all of the age groups (figure 17). Thirty-five selections would indicate that some respondents selected more than one option. The passion for aviation drops significantly in the 21-25 age group and beyond. This trend is supported by Interviewee B, who commented that, once you

get into it [aviation], you realise that it is hard work and not the glamorous industry that was first imagined.

> *Most people actually do think that it's a very glamorous job, but especially when it comes to flying, you get into it and you realise that it's actually hard work, and it takes years and years of flying to even get your first airline job – especially in New Zealand. Then, half way through your training, you sort of – your motivation changes, and of course your experiences changes that as well." (Interviewee B, August 2018)*

Wanting a good career ranked second on the motivation list and this was backed up by the viewpoint of Interviewee A.

> *"Well, they usually get the reward of the better jobs when they go home." (Interviewee A, August 2018)*

In general, aviation teachers had very different ideas about the student motivation from what the students reported.

> *"Quality of life, once they're employed; it's a good-paying, rewarding career." (Interviewee A, August 2018)*

Being paid well was 3rd ranking on the students' motivation list (figure 17) and had a lower score than a passion for aviation.

The perception from Interviewee A was that international aviation students are not as passionate about aviation as New Zealand students, which is contrary to the survey data which indicates that passion for aviation is the top motivation for joining the industry (figure 17).

> *"I think we find compared to the Kiwis, Kiwis just have a passion for aviation in general, by the time they get here. They're just in love with the industry, and they just want to know more. Whereas, we often hear [with international students], 'is this in the test?'. So, we do a*

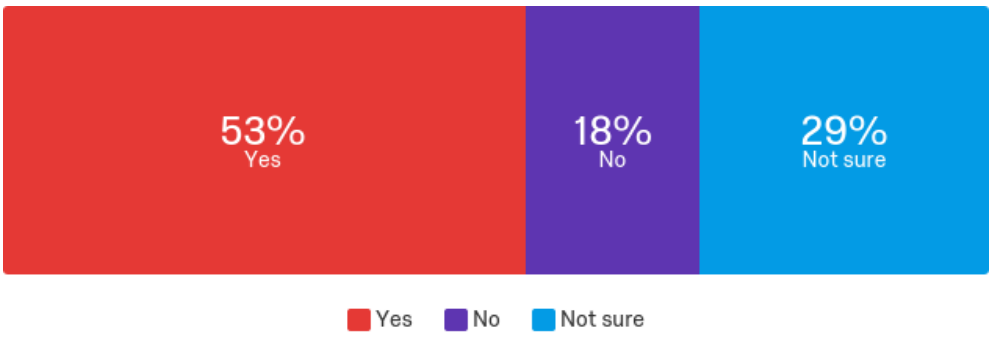
tour to a helicopter centre and learn about helicopters, the Kiwis lap it up, but some of the international students just think, I only want to learn it if I have to. They don't buy into the whole industry thing. Everywhere they go it's a prestigious career; they just want to learn what they need to do to pass, to get there." (Interviewee A, August 2018)

Parental push was mentioned by Interviewee C as a strong driver; however, in the survey results, no students selected this as a motivation.

"I think it's generally one of probably three broad categories: 1) interest in aviation or travel, to begin with; 2) what we see from time to time is that there's some sort of parental push for them to go down that channel; 3) is that they have a random thought that, oh I'll be a pilot. So, they haven't had that mature thought process about why, what and how; that doesn't normally work out so well." (Interviewee C, August 2018).

4.9 E-learning Learning

Figure 18: Participating in e-learning **Source:** Survey Q20



In figure 18, 53% of respondents said they had participated in e-learning in the past. Interestingly, 29% said 'not sure', which suggests ambiguity about what 'e-learning' actually is, and 18% said that they have not participated in e-learning.

These results do not reflect the viewpoint of the aviation teachers.

"I don't think so [student will respond to e-learning]. I don't think you get the numbers. The ideal would be a mixed class [blended learning]" (Interviewee A, August 2018)

"I think that depends on the students as well; with the Saudis and the students from the Middle East, they're not motivated to do any of that stuff. China, Hong Kong; yes, they'll pretty much do anything [the teacher says]" (Interviewee A, August 2018)

"No, I don't think so; it's just because where they're going to be operating when they actually go into the live environment. They need to have some sort of practical experience. They need to be in the simulator. They need to be with an instructor telling them, okay if you say this, this person might respond in this manner. It needs someone to show them that. That's just the nature of Aviation English." (Interviewee C, August 2018).

However, not all the aviation teachers were in agreement. Interviewee B said:

"Yeah, I think actually making tests or even quizzes that are like games would be really good I reckon; most kids these days – they actually grow up playing lots of games. I think that's actually a good way of approaching it……. [they'd be] interested rather than just reading a whole lot of boring notes and then doing it like a quiz at the end." (Interviewee B, August 2018).

There seems to be a disconnect between what the aviation teachers believe and what the students have indicated: 53% of students said they had studied online before (figure 18) and organisational beliefs are that the Aviation English course needs to be face-to-face to be successful. The researcher journal indicates this organisational belief (figure 19) although it is unclear if it is the training provider organisation that has this belief, the individual teacher or if it is the customer organisation.

Figure 19: Organisation perceptions of e-learning learning **Source:** Researcher journal

20th September 2018- I had a call from the training manager at ***** asking me if I could go to Kuwait to teach Aviation English on Monday. I can't because I have prior commitments but I suggested that I could teach it online. They said that it wouldn't work because the students would not be motivated to do it that way.

In triangulating the teacher interviews and the researcher journal, there appears to be an organisational belief that students will not be motivated to participate online. This belief is in direct contradiction to the survey data, which indicates 53% of students have studied online before (figure 18). When asked what they had studied online, many of the responses related to language learning (see figure 20).

Figure 20 E-learning completed online Source: **Survey**: Question 21

AGE	E-learning completed in the past
18-20	Online IELTS[1] and TOEIC[2] tests
21-25	Learning Spanish course for beginners
26-30	Maths, Physics
31-35	On YouTube,Padpilot atpl,Banking related (online training provided by my previous employer)
36+	No response

[1] The International English Language Testing System (*IELTS*) is the world's most popular English language proficiency test for higher education and global migration, with over 3 million tests taken in the last year.

[2]The Test of English for International Communication® (*TOEIC*) is "an English language test designed specifically to measure the everyday English skills of people working in an international environment

To confirm the contradiction further, when survey participants were asked about the elements they thought should be included in an e-learning Aviation English course, the results were diverse and indicate that students were prepared to participate in a wide range of online activities in a non-face-to-face environment while building Aviation English skills (see table 11).

Table 11: What things do you think should be included in an online Aviation English course? N=21
Source: Survey Q34

ACTIVITY	18-20	21-25	26-30	31-35	36+	TOTAL
Quizzes	1	5	3	2	0	11
Progress indicators	1	6	3	1	0	11
Speaking and listening tests and assignments	1	5	2	2	0	10
Individual assignments	0	5	3	2	0	10
Live classes with a real teacher	0	5	3	1	0	9
Video content	0	5	3	1	0	9
Group Chat Functions	0	7	1	0	0	8
Written tests and assignments	0	4	2	2	0	8
Group assignments	1	5	1	1	0	8
Facebook	0	5	0	1	0	6
Online multiplayer games	1	2	1	2	0	6
Social media groups and pages	0	4	0	2	0	6
Online single player games	1	1	1	1	0	4
Other*						

*Actual interaction between pilot trainee and ATC trainee, with supervision

Answers to this survey question provide some details about what students would like to see in an online Aviation English course (table 11). Individual activities feature strongly, with quizzes, speaking and listening assignments, individual assignments and progress indicators taking dominance. Collaborative activities like online multiplayer games, group assignments, social media groups and pages were indicated and the least popular selection was online single-player games. The survey participants over the age of 36 did not answer this question. Having online interaction with a 'real' teacher was also a frequent selection.

In table 13, survey respondents selected a wide range of commonly used social media applications and the volume of selections would indicate that they use more than one application on a regular basis. The top four applications (Facebook, Instagram, YouTube and WhatsApp) are all commonly used in New Zealand and by these international students too.

Table 12: *Most commonly used social media applications by aviation students. N=21*

Source: *Survey Q22*

APPLICATION	18-20	21-25	26-30	31-35	36+	TOTAL
Facebook	2	5	6	2	0	15
Instagram	2	6	4	1	0	13
YouTube	1	6	4	2	0	13
WhatsApp	1	5	4	2	0	12
Snapchat	0	4	0	0	0	4
LinkedIn	0	1	0	1	0	2
Twitter	0	1	0	1	0	2
Tumblr	0	1	0	0	0	1
WeChat	0	1	0	0	0	1
Douban	0	0	0	0	0	0
Meipai	0	0	0	0	0	0
Naidu Teiba	0	0	0	0	0	0
Pinterest	0	0	0	0	0	0
Sina Weibo	0	0	0	0	0	0
Tencent QQ	0	0	0	0	0	0
Youku Tudou	0	0	0	0	0	0

While the aviation teachers don't believe that students will be highly motivated to participate in an e-learning course, they did express some positivity to the possibility but were highly cautious.

> *"Certainly, social media is an aspect of it; the only thing with that is that you need someone quite robustly to maintain the thread – the correct thread, because it tends to go off on its own, and there's a bit of miscommunication – Chinese whispers, as it were. For example, if it's a radio call, and someone would say, oh no it should be this way in this format. Whereas, they've tended to go off on a tangent……they'll use it to their benefit in whatever way they can [implied cheating]" (Interviewee C, August 2018)*

And they recognised that students are participating in online activities that relate to their study.

> *"A lot of the simulators themselves, like FlightSim and that sort of thing; they have the communication built into them now, so you can overlay the air traffic communication……. I*

don't know how readily they'd uptake that if they've already been exposed to it, and they're thinking, oh I already kind of understand this, or I've seen this before." (Interviewee C, August 2018)

Interviewee B has some ideas about what might work effectively so there was evidence that interviewee B had thought about the fact that e-learning is possible.

"Trying to design your e-learning so that it is interactive and speaking and listening based. It can be recorded, some of the stuff; describe what's happening in this video – some of that kind of stuff…….

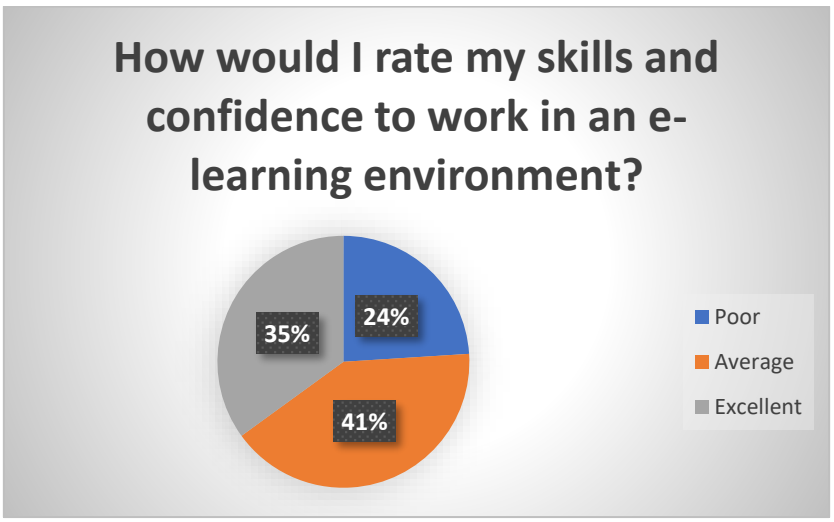
…Yeah, I think actually making tests or even quizzes that are like games would be really good I reckon; most kids these days – they actually grow up playing lots of games. I think that's actually a good way of approaching it." Interviewee B, August 2018).

There was an understanding that students had the ability and skill to work in an e-learning environment.

"[they are] very tech-savvy" – (Interviewee C, August 2018)

Seventy-six per cent of survey participants rated their skills on line as excellent or average (figure 21) which does reflect the belief of Interviewee C.

Figure 21: *Participants rate their skills and confidence to work in an e-learning environment.* ***Source:*** *Survey Q15*



In table 12, 18-20 year olds spend the greatest amount of time e-learning each day with a mean average of 8:00 hours; 21-25 year olds, 5:14 hours; 25-30 year olds, 5:33 mean average hours and the 30-35 year olds, significantly less at 2:50 hours.

There are significant differences between age groups when looking at the amount of time spent online each day and this could indicate that those in the 18-30 age group would be comfortable working in an e-learning environment.

Table 13: Time spent e-learning each day Source: Survey Q18

On average how much time do you spend e-learning each day?

Time spent e-learning AGE	Mean length of time each day
18-20	8.00
21-25	5.14
25-30	5.33
30-35	2.50

Facebook, Instagram and YouTube were the most commonly-used apps in the 18-20, 21-25, 25-30 age groups with the 30-35 year olds using Facebook and YouTube the most (table 13). This shows a consistence of application use across all the survey participants and would indicate the social media applications which could be most useful in an e-learning Aviation English course.

This gives a view of the cultural differences across application usage. The application options given included options that are used predominantly in China and Saudi Arabia and these were not selected by the survey participants. The applications chosen are dominant in English speaking contexts. While participants were not asked in the survey 'what language do you use on social media?' this data could indicate that they use Engish on social media platforms.

In this findings chapter, the data from survey, interviews and the researcher journal have been presented using the theme of challenges with Aviation English, Motivation and Perceptions of e-learning.

5 Discussion

5.1 Introduction

The findings demonstrate many challenges in motivating students to participate in an e-learning Aviation English course. The researcher's approach (6.3.1) outlines the challenges that were faced as the original research project was implemented. It seemed inexplicably difficult to get students to enrol on an optional e-learning Aviation English Course and, once this avenue had been abandoned and a new research approach designed, it was then difficult to get students to participate in the forum group discussions and the survey as part of the research project. While there is a possibility that these challenges could be the result of poor timing or communication, it is unlikely that these factors are the only contributors to this outcome, considering that both training organisations and the researcher had no concerns about accessing a cohort at the beginning of the project. Therefore, it is highly probable that there are underlying issues with motivation that are well worth exploring further.

This discussion will look at the reasons why it was so challenging to get participation in the course and the research project. It will also look at the results and literature that will support a discussion about the options for e-learning that will best work in an aviation learning environment.

The original research questions will continue to guide the discussion.

The findings will be discussed through the lens of Dörnyei's Direct Motivational Current theory. Dörnyei's theory (2016) defines five key elements: goal and vision orientedness; salient and facilitative structure; participant ownership and 'perceived behavioural control'; clear perception of progress; and positive emotional loading. When the results are viewed through Dörnyei's elements we can begin to see what is missing.

During this research project, it became very clear that there was an "elephant in the room" - the validity and credibility of Aviation English as a subject. This needs to be unpacked in order to truly ascertain the validity of an e-learning context for Aviation English. It is important to evaluate the

value and credibility of the instructional subject (Aviation English) because it is an important part of ascertaining the motivation to learn in the subject in an e-learning environment. It seems that motivation (or a lack of motivation) to study through e-learning could mistakenly exclude the importance of a student's motivation for the subject matter. All stakeholders' perceptions of the instructional subject are highly important as we start to think about ways to build motivation to learn Aviation English in an e-learning environment.

5.2 Motivation

Motivation is an overarching theme that relates to the first three research questions:

- How are students generating motivation to participate in the e-learning course?
- To what extent do they have an Aviation English end goal and an accompanying vision that energises their participation?
- What external factors influence a student's motivation to participate in an e-learning Aviation English course?

Reflecting on the literature, it is clear that motivating students to participate in e-learning is possible and it need not be a difficult task. The challenge arises when there are certain critical elements missing from the context or course content. If e-learning is viewed as a complex recipe, then there is a need to have all the ingredients present for the outcome to be successful. If we choose to leave an ingredient out or if we don't believe that an ingredient is important or even just forget to put it in, the final product will not be palatable for learners. There will be a lack of motivation to participate. When we get the recipe just right, we see a very different outcome.

This discussion has been divided up into themes and synthesised, evaluated and discussed. These are:

- The training organisation's perceptions of Aviation English vs their actions
- Reliance on testing

- Lack of communication
- Lack of trust in the proficiency tests
- Direct motivational currents
- Individual student motivation
- Students' and the training organisations' perceptions about e-learning.

5.2.1 Aviation English- Training Organisations' Perceptions of Aviation English vs Actions

There were some interesting variations between different key stakeholders' perceptions and resulting actions around Aviation English. Both training organisations recognised how important quality communication is. They are acutely aware of the impact on aviation safety and critical incidents. As mentioned in the introduction, Crushing (1994) looked at many of these aviation incidents and concluded that most of them could be attributed to individual cognitive and social factors relating to language use. The organisations also understand how important quality English communication is for the overall academic success of their students. Martirosyan et al. (2015) analysed the ELL students' perceptions of their ability to speak English and showed significant differences between language proficiency and multilingualism and academic performance. The research showed that the highest GPA (grade point average) was present for students who had perceived that their English-speaking ability was strong. Students who think they are good at speaking English or who include English as 'one of the languages I speak' academically outperform those who don't.

While there are no surprises here, it is interesting to note that, while there is a belief by the training organisations about the importance of sound English communication skills, and evidence to support this belief, the actions of the training organisations do not always correspond with the belief. Aviation English is not always a compulsory component of pilot training or ATC courses. An airline or ATC authority will often purchase training packages for interns and, depending on the outcome of financial negotiations, Aviation English may, or may not, be part of a full programme available to the

students. For the most part the general responsibility to build English competency sits squarely on the shoulders of the students and provision of learning opportunities appears to be dictated by customer expectations around costs and/or timeframes for training. Why could it be that the training organisations view Aviation English as optional if they see it as being critical to safe aviation and successful student outcomes? This may be linked to an over reliance on the IELTS initial testing.

5.2.2 Reliance on Testing

Firstly, it seems that the training organisations are too reliant on the IELTS test to provide an indication of proficiency in English and this is also confirmed by Alderson (2010). Training organisations tend to work off the base assumption that, if a student has an IELTS of 6.5 and then participates fully in the general aviation course work, they should be able to pass the ICAO level 4 proficiency test. While they know that this may work for some students, it doesn't work for all of them and, therefore, remedial action is taken when required. For those students who do not hold the required level of language proficiency at the conclusion of their aviation training, interventions are applied, and the ICAO proficiency test can be sat multiple times. In addition to this, it is not uncommon for students to completely fail an aviation course. Teachers report that a lack of English language proficiency is nearly always a key contributor to failing students results and that a lack of English proficiency does not allow them to function fully in an academic setting. That is to say that they are not able to complete their course of training because their general and academic English is not good enough.

What does this mean for student motivation? If we consider Dörnyei's (2016) key element number two - salient and facilitative structure - there must be a clear starting point and clear reason for the motivation. In this case, the learner cannot achieve the greater objective without it. Students talk to each other; they communicate between year groups and courses. They will know that sometimes Aviation English is included in course programmes and sometimes it isn't. When the compulsion to study Aviation English is removed, there is a loss of the clear reason for motivation. A 'why do I have

to do it when others didn't?' attitude could begin to appear. To date there appears to be no research around the validity or impact of making an Aviation English course a compulsory component of an aviation studies programme but if we consider the DMC model, it is highly likely that the non complusion has an impact on student motivation. When the main aviation course workload is heavy, highly assessed throughout the course and provides credits for a final course grade, why would students see value in dedicating time to a subject that is not 'always' compulsory and never earns course credits? They have to sit the ICAO test at the end of their study but perhaps they take a 'wait and see' approach to the proficiency test. The findings of Fenton-Smith & Humphreys' (2015) study of postgraduate coursework support mechanisms indicated that credit-bearing ALL (Academic Language Learning) courses were viewed as highly effective by both students and teachers. This would indicate that motivation could be gained by the credits from an ALL course counting towards the overall aviation course grade, rather than leaving it to a 'hit and miss' approach to the final ICAO test.

5.2.3 Lack of Communication

The second reason students may lack motivation relates to a lack of Dörnyei's (2016) key element number one - goal- and vision-orientedness.

Both training organisations discuss the absence of information provided about the importance of English language to students in enrolment packs and pre-course communications. They both said that they were certain that students did not have any idea about how important English would be to their success in the course. This appears to be an assumed competency and links back to the presence of the IELTS competency test. Students need to obtain IELTS 6.5 to gain entry to the aviation course; students know this, so it seems that the training organisations make the assumption that they don't need to be more explicit about the requirements than that. If there were more emphasis put on the benefits and requirements of strong English communication, and if there were credits toward an overall course outcome, then students would be able to formulate a goal and

vision around the success they want in this area of their study, just as they do for other areas of the aviation course.

5.2.4 Lack of Trust in the Proficiency Tests

There is a good body of literature around the issues with the Aviation English proficiency test. Alderson (2011) says that the ICAO testing is using unproven and unreliable instruments of testing, that examiners are not adequately monitored, and that the industry can have little confidence that a pilot or ACT with lCAO level 4 has indeed reached the required standard for safety. This research project shows that some interviewees reported having little trust in the validity of the ICAO test and talked of an ability to pass with repeated attempts, and that they often experienced surprise at students' results (student passing who shouldn't have or vice versa). While the students may not have any pre-conceived ideas about the validity of the ICAO test, it is reasonable to assume that teachers' perceptions are, to some degree, passed on to the students. Teachers' perceptions are that students are aware of the ability to sit multiple times, that they memorise answers and will have knowledge of past students' experiences with the test. If they have an innate distrust of the test this has a direct impact on Dörnyei's (2016) key motivational element number three, which is participant ownership and 'perceived behavioural control'. In this case the learner must understand the need to achieve and also believe that they have the ability to achieve it. If students don't trust the test, then it is likely that they don't believe they have the ability to achieve it because it is not a reliable measure of their ability.

The results of this study show us that, while students have an IELTS test score of 6.5, when they were asked how they would rate their conversational English we can see that 41% of them responded that it was poor. It is difficult to imagine how a student would be able to take ownership of their motivation when a test tells them one thing but they believe another of themselves. Basically, if a belief doesn't equal a reality there is a perceived lack of behavioural control.

In addition to this, there is a question about the reliability and/or suitability of the IELTS test for students of aviation. Teachers from both training organisations indicated that the IELTS test was not fit for purpose for aviation studies and that they have had students who have passed with 6.5 but have struggled in both the classroom and simulator/cockpit learning situation because of their inability to communicate in English. Alderson (2011) did a survey of Aviation English tests and concluded that there was little confidence in the "meaningfulness, reliability, and validity of several of the aviation language tests currently available for licensure". IELTS was one of the tests referred to in the survey and while it is not used for licensure in New Zealand, it is used as an indicator of proficiency to learn in English speaking educational organisations.

There are many different tests on the international stage (Alderson, 2011) and, according to an aviation teacher interviewed for this research, the student's perceptions about the validity of the ICAO test depends on the student's country of origin. There are some countries that insist on doing their own ICAO test and don't rely on the New Zealand test as being valid. They think it is too easy in New Zealand. This again reinforces the validity of the test as it is actually and 'international test' that should register the same standards across the globe. The researcher's knowledge and personal experience as an EFL teacher certainly accord with Alderson's (2011) views around validity.

5.2.5 Individual Student Motivation

Having established that the training organisations' actions and the reputation of the proficiency test are likely to have an impact on student motivation to participate in Aviation English, it is now important to synthesise this with the findings from the students themselves.

Dörnyei's (2016) key element number five for motivation is positive emotional loading: learners must view all activities as useful and meaningful, even if they are not pleasurable. They want to experience something new and have new opportunities open up. When participants were surveyed about why they chose to study aviation, the dominant answers were "I am passionate about aviation" and "I want a good career". Both of these answers indicate positive emotional loading.

However, when the aviation teachers were asked why they thought students study aviation they included things like 'parental push', they talked of a lack of passion for aviation and had a view that students thought it was a "glamorous" profession and that had been the reason the students had selected it. Teachers thought it was mostly the presteige of the job and the pay packets that motivated students. There is, therefore, a disconnect between what motivates the students and what the teachers think motivates the students. This leads to questions that are not addressed in this project but warrant exploration as further research.

The students surveyed reported that 12% of them had negative feelings towards Aviation English and 41% said they had neutral feelings toward it. This is interesting when you consider that, when asked "how important do you think it is to communicate effectively in English in an aviation environment", 88% responded 'very important'. The majority think it is important and yet over 50% of respondents had negative or neutral feelings toward it. The potential reason for this difference could be that students know they have met the required standard to study (IELTS 6.5) and think that this is enough to provide them with the skills to function operationally and academically. Perhaps they don't have positive feelings toward Aviation English because they simply don't see the need for it or understand its importance. Dörnyei's (2016) theory would suggest that they have a lack of Direct Motivational Current.

5.2.6 Direct Motivational Currents (DMC)

DMC in relation to language learning is more than creating a pathway towards a goal: it is about energising the goal. The basic premise is that the more success you have, the more success you will have. A 'snowball effect'.

Let's imagine for a moment a student (Lee) who has decided that she wants to become a pilot. She applies to the training school in New Zealand and sits the entrance tests (one of which is an IELTS test). She has learned English at school but never lived or worked in an English-speaking country. She is unsure how she will go in the IELTS test but is giving it a go anyway because she knows her

English reading and writing skills are OK. She also knows that her conversational English skills are not strong. She passes all the tests, gets 6.5 on the IELTS and is accepted into the pilot training course. The next thing she knows is that she is sitting in a classroom, with a teacher who only speaks English, with fellow students who don't speak her language, finding it challenging to study her aviation subjects. She knows that it is most likely her English holding her back so she puts hours and hours of study into the aviation subjects so she can pass the written tests by memorising. The course work is heavy and she has to do extra because her English is not strong. She doesn't allow herself time to socialise or talk to other students in English. She lives at an NZ homestay but spends most of her time in her room studying. Her English reading and writing skills are improving and she is managing to pass the written exams. When it comes time to work in the flight simulator and the cockpit, to communicate with the Air Traffic Control Service, or to talk to her instructor while flying she then starts to really struggle. She has passed all her theory papers but can't seem to get across the line in the practical components of her course. Lee's qualification is at risk. Lee has had little success with speaking and listening to English and, if we apply the DMC model, there is no launch point of departure for motivation. Her English speaking and listening cannot improve because she is stuck in the loop of communicating to survive rather than to thrive.

In contrast, let's imagine another student (Ben). He has been accepted into an ATC course in NZ and will travel from his home country to complete the training. He got an IELTS of 6.5 in the entry tests and has been learning English from the time he started school. His family has travelled extensively, and he has had a lot of opportunity to communicate in English. He likes to play multi-player online games in English and has several online friends to whom he speaks in English. He would say his English is not great, but he is confident to give it a go and enjoys the challenge of communicating in another language. He arrives in NZ and moves in with a homestay family. He immediately makes friends with the family and spends a few hours every evening hanging out with them and their friends, speaking and listening to English. He enjoys the ATC course work, has a good relationship

with the teachers and thrives in the ATC simulator. He openly looks for feedback about his English and get excited about learning new vocabulary and using it. It is looking like Ben will do well in his aviation studies. Ben's initial success and willingness to grow feed his success and we can see that he is working within a positive DMC model. He is communicating to thrive and not just survive.

Looking at the findings of this research, when asked how they would rate their conversational English we can see that 41% of the participants responded that it was poor. A training organisation reported during the study, that five potential trainees had not passed the IELTS test and that they were working with them to get them to pass so they could start their training within three months. It is unlikely that positive DMC will be created in a student in just three months. The impact of starting training without a sound level of motivation to improve English communication will have a compounding effect, such as student's overall outcome and potentially impact on their ability to do a good job.

5.2.7 Student and the teacher perceptions about e-learning.

This discussion so far has considered the contributing factors that have reduced a student's motivation towards Aviation English. This is important because it contributes to the intrinsic motivation of the students. We now turn to this research project's design focus, which is to look at an aviation student's motivation towards e-learning.

There is no doubt that e-learning of Aviation English has enjoyed some success to date. Istifci (2016), Beagle & Davies (2003), Wang & Wu (2016) are all cited as having reviewed e-learning in an Aviation English context and with findings reporting positive student engagement.

The student respondents to the survey in this research project all selected a wide range of e-learning activities they thought should be included in an e-learning Aviation English course and, considering that 53% of respondents had previously participated in e-learning, it would indicate that they are positive to participating in this context. They had potentially enjoyed success in an e-learning context

before and indeed have ideas about how to make it successful. The students' responses and preferences in terms of the e-learning activities can be sorted into three categories:

- Individual activities (live online face-to-face classes with a teacher, single-player games, quizzes, video content, individual assignments)
- Group activities (group chat, multiplayer games, social media groups, group assignments)
- Assessment activities (quizzes, written tests and assignments, progress indicators)

Forty responses showed that survey participants would like to undertake assessment activities online, 26 responses indicated support for group activities and 22 showed individual activities (table 11). Corelation can be drawn between these findings and Mutambik, Lee & Foley (2018), who identified three factors that had dominance. Self-efficacy, personal motivations and having access to the required resources. These link to assessment, group and individual activites indicated by the survey participants. All these factors contributed to the readiness to learn online. Individual activities and giving choice around group activity participation provide self-efficacy.

Assessments (formative and summative) give access to the required information for learning. In this project, teachers felt that students had the resources and technical ability for e-learning. However, as previously discussed in the motivation section (4.2), there is a lack of personal motivation and questionable self-efficacy, which is most likely due to the very structured and teacher-centred practice of the aviation course they are exposed to. Indeed, Dörnyei's (2016) participant ownership element encompasses self-efficacy as a required trait of effective language learning. If we consider the intersection between Mutambik et al (2018) and Dörnyei's (2016) views, we can draw the conclusion that self-efficacy is a critical element for success in e-learning Aviation English.

Prior et al's (2016) findings focused on the importance of self-efficacy on e-learning behaviours and their findings suggest that when self-efficacy is present it has positive effects on peer engagement interactions, with learning management systems and interactions with teachers.

The researcher observed that classrooms in both organisations were mostly utilising teacher-centred practice and “chalk and talk” methodology in general aviation theory classrooms and yet teachers reported in the interviews that practical components of the course are what students seemed to be most engaged with.

It seems that there is a lack of self-efficacy and student-centred practice in an aviation classroom and this could be contributing to an aviation teacher concern about adopting e-learning for Aviation English.

In the interviews, teachers mostly thought that there would not be much motivation or success if students were e-learning, and it was implied by one teacher that students would find a way to cheat. However, one teacher in the interviews thought that students would be interested in working with e-learning and that e-learning activities could work. There was a sense of caution as the teachers discussed e-learning and a concern about making situations ‘real’, which could be related to a belief that e-learning aviation simulator games are not useful for aviation training, causing bad habits and an unwarranted sense of confidence in the students who are proficient in aviation simulation games. This could be due to a perceived lack of control by the teacher in a student-centred learning environment where the teachers don’t always know what the students are ‘doing’ online. It is also possible that teachers are concerned about online aviation simulated games not keeping up with changes to aviation practices and allowing students to learn ways of operating that do not fit with aviation regulations. There is no guarantee that aviation simulation games are designed by qualified subject matter experts and, because of this, may not be seen as useful additions to course content. The do however, offer opportunites to practice communicating in English in an aviation environment.

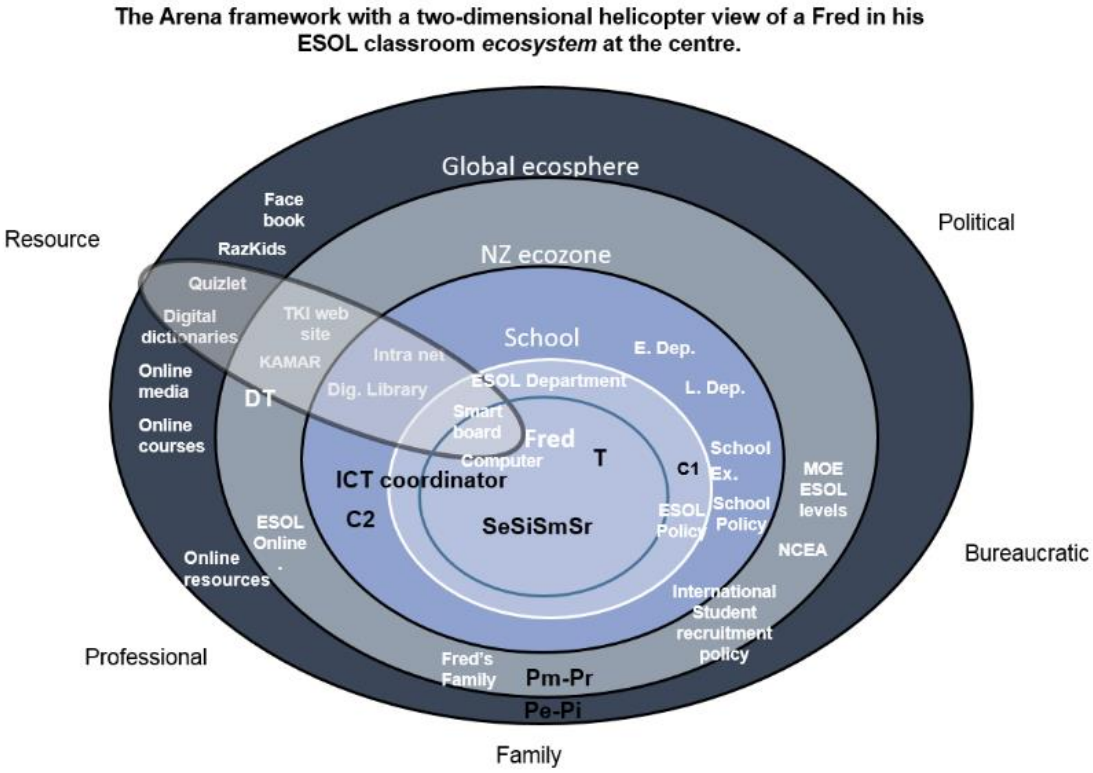
Toffoli & Sockett (2015) looked at university teachers’ perceptions of language e-learning. While the teachers saw the value and were potentially interested in using e-learning resources and learning strategies, they felt the need for adaptions to educational systems to allow for more informal

learning opportunities. Subject matter teachers had views on the 'right or wrong' ways to learn English.

None of the aviation teachers in this study were EFL-trained teachers and there is a possibility that this lack of knowledge around the teaching and learning of English has contributed to more traditional views on the language learning. There is also potential for teachers to have a lack of motivation to change or evolve their existing teaching methodologies. Farshad et al (2018) conducted a case study research project on a single, secondary school English as a Second Language (ESOL) teacher in New Zealand. This brief account provided perspective on the interrelationships within the ecosystems in which the teacher worked. These inter-acting ecosystems have been mapped by Davis (2018) into an ecosystem framework called the Arena Framework (see figure 22). By viewing the teacher's experiences through the lens of the Arena Framework, it becomes evident that the interrelationships have allowed the teacher to use technology to provide equity, access and a degree of flexibility for his students in an e-learning environment. One of the key findings of the Farshad et al (2018) case study was that, in ESOL contexts, digital tools can provide positive support to teachers who are prepared to create student-centred environments that will increase inclusion, equity and access but this can only happen when there is concerted effort and support for change from teachers, organisations and communities. If this viewpoint it adopted, this could also explain a teacher's lack of confidence around effective language learning happening in an e-learning environment or indeed what that exactly means. When asked about what particular things might keep students interested in e-learning, all the teachers interviewed came up with some interesting examples, which indicates that they had thought about it and did have some favourable feelings towards e-learning. There could also be a reluctance to make pedagogical changes that allow for student-centred practices in aviation classrooms. This could be because teacher competency in student-centred practice is lacking or there may be concerns around costs of course redesign or maybe there is a fear of 'experimenting' with student achievement via new pedagogies or a

perception around a fit with the home culture of students. This area potentially warrants further investigation and research.

Figure 22 The Arena Framework Source: Davis (2018)



5.3 CALL and CLIL

It is worthwhile looking at the impact on motivation when Aviation English is included in a learning programme and is treated as a separate subject and essentially siloed from other areas of course work. If we considering the impact the Content and Language Integrated Learning (CLIL) could have on Aviation English teaching in the aviation industry. CLIL is an umbrella term that describes several ways of teaching in which content is learned in a foreign language or second language. It is about learning your language within the context of a special subject area. It involves scaffolding language within the specialised subject and engaging learners in different kinds of tasks (Bloom, 1965). While CLIL need not incorporate e-learning it just as easily could, looking, for example, at the research of Arnó-Macià & Mancho-Barés (2015), who state that CLIL has an increased presence in universities. Their analysis of programmes at Catalonia University showed that there are opportunities to adapt course content to include and integrate English for Special Purpose (ESP). Where there were opportunities to collaborate with content-based course designers, the courses became more responsive to the communicative needs of the students. They did discover that while the institution 'said' they were using CLIL it was not always 'true' CLIL and recommended that institutional policies be changed to allow for the true integration of ESP into course content. This is seen as an opportunity to engage in a wider multi-disciplinary activity, which in itself is the true essence of ESP.

Two of the teachers in this research project talked about the importance of course teachers in building English language competency in other subject areas but this was not formalised as Aviation English within the course content. At present, if Aviation English is included in the course programme it is with a specific Aviation English teacher in a separate, timetabled class situation. While both pilot and ATC training includes specific communications training, it does not always specifically teach or assess Aviation English beyond standard phraseologies. Aviation English teachers do not have to be subject matter experts and generally rely on specialist texts to teach vocabulary and Aviation phraseologies. There is a huge opportunity for teachers of aviation subjects

to take a fully integrated approach to Aviation English. Both ATC and pilot training involve the extensive use of simulator activities in core instruction that replicates or provides for real life scenarios. The research of Reinders and Wattana (2014), Hamari et al (2014), Ranchhod et al (2014), and Meihami et al (2013) indicates that online simulated games are an effective tool for language learners. The simulator environment of the aviation training programmes is ideally situated to integrate this technology into the competency building of Aviation English. Such an approach would require professional development and shifts in pedagogy and there is potential for students to reap the rewards of such changes in practice.

Santos, Pacheco, Reyes, & Vargas (2018) looked at student and teacher perceptions of Aviation English in Salinas, Ecuador and concluded that there was total acceptance from the student participants in the research to complete tasks and learn via e-learning. In the ICAO's guidelines for Aviation English training ICAO (2009) it is recommended that a blended learning approach be used as it improves student autonomy and skills. Classroom contact time should be used to reinforce topics and to practise skills. It is interesting to note that ICAO made these recommendations 10 years ago and, if we consider the advancement in teaching technology in the last 10 years, it is safe to assume that current applications and programmes would further enhance student engagement and academic outcomes.

One of the aviation teachers interviewed as part of this project suggested that blended learning may be a successful approach although it has not been utilised in an NZ context before.

5.4 Critical Components for an e-learning Aviation English Course

The final question that needs discussing is:

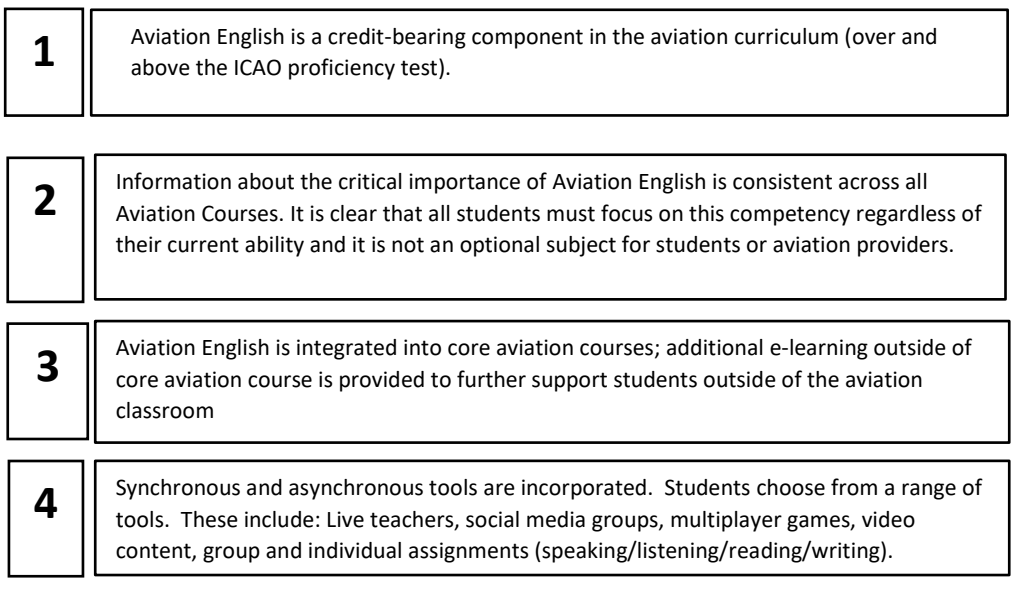
- What components need to be present in an e-learning Aviation English course to optimise student engagement?

Firstly, students need to have a very clear understanding of the importance of communicating in English at the earliest possible stage of engagement: ideally, in the pre-enrolment phase and at multiple touch points throughout the course. At present, Aviation English bears no course credits in general aviation programmes. If we consider that the participants surveyed rated highly the inclusion of assessment models in an e-learning context, and reference this against the work of Fenton-Smith and Humphreys (2015), who recommended the presence of credit-bearing language learning units within specialist subject courses, it would seem that motivation to participate would be improved if Aviation English were to be given credits towards overall course grades.

The research data showed that students of aviation would engage with a broad range of activities and exercises in an e-learning context. The literature tells us that having a high sense of self-efficacy and collaborative learning situations which engage in social presence, all need to be in play to allow for successful engagement and academic outcomes. Teachers of aviation all agreed that student preference is to participate in practical activities. Aviation English would lend itself to an e-learning platform that is interactive, has individual and group activities, assessment models, student choice of activities, social interaction, can be practical, has both synchronous and asynchronous content and is, ideally, fully integrated into core aviation course work as opposed to being a siloed subject.

It is useful to consider what a set of design principles might look like.

Figure 23: Aviation English e-learning Course Design Principles



5	Using a student-centred CMS (eg Moodle or similar) that supports multiple applications. Content and delivery is co-constructed with SME/aviation teachers and woven into the existing core aviation curriculum
6	A blended approach to delivery occurs in the core aviation classroom. There are no specially timetabled Aviation English classes.
7	Formative Assessment: Aviation teachers are trained to give instant face-to-face feedback around speaking and listening. Online quizzes and short tests that occur throughout the whole aviation course. Online tutorials/classes/tests with a live Aviation English teacher. Summative: Speaking and listening tests that are developed to sit inside the core aviation curriculum/during simulation activities. ICAO proficiency test.

These design principles recommend a shift in the current practices in Aviation English teaching and learning, and would warrant further design-based research. It would be possible to implement in stages with a view to a long-term change in the pedagogical approach to Aviation English teaching. Small steps could be taken to make this more achievable and palatable to aviation training providers.

These small steps could include:

- Upskilling of aviation teachers in the areas of English language teaching.
- Co-construction of Aviation English a range of resources and lesson planning materials that dovetail with the aviation subjects that are being delivered in the face-to-face classroom. These would be delivered by the aviation teacher.
- Integration of 'live' Aviation English teacher-sessions online.
- Building of interactive, content-relevant social media pages, forums and discussions.
- Creation of a LMS that provides for learner autonomy, assessment, synchronous and asynchronous content and a wide range of applications.

With these principles in view, the approach to the teaching and learning of Aviation English will begin the journey towards student efficacy and collaborative learning in an e-learning setting.

6 Conclusion

In conclusion, it is clear that students of aviation can be and are motivated to participate in an e-learning course and that there is evidence that ESP and e-learning have a good fit.

As with any research project, there have been limitations. There have been two key limitations to this study. Firstly, the project is just a single case, using a single cohort for a limited period of time. There was a possibility that generalisations may have been made (Yin 2014). To mitigate this, any generalisations in the analysis of data were expanded to relate to the DMC theory.

The second limitation is that the researcher was working as a participant-observer in this study. Yin (2014) pointed out that the researcher will need to be aware of any potential bias that they might have. This is relevant given that there were major changes in the project and it has been important for the researcher to remain objective throughout the changes. It is also important to point out the findings and conclusions did not in any way reflect the researcher's original informal hypothesis which was that a face to face classroom is the best place to learn Aviation English. There were many elements of the data that were truly surprising and this adds to the trustworthiness of the study.

What are the implications that evolve from the findings of this research?

Firstly, there are some systemic issues for Aviation English educators to consider.

These are:

- A lack of self-efficacy and how this can be fostered and developed within course design.
- How to get students to have a genuine intrinsic motivation to participate.
- How to incorporate genuine social presence in an e-learning context.
- How to get students and teachers being able to fully 'trust' in the system of assessment.

Secondly, there were significant external factors that have influenced each student's willingness to participate in the project. However, when we consider the literature, many of these external factors could be able to be mitigated by changes to a training organisation's approach to Aviation

English. Within this research project, it has not been possible to test which components of an e-learning course would optimise student engagement in e-learning but the survey results and related literature have been able to give sound direction on this. This project has provided a valuable insight and uncovered deep challenges that need to be addressed to enable a transition to e-learning in an Aviation English context.

While there is a significant body of research that looks at the ESP (English for Special Purpose) teaching context, there is little work targeted at the Aviation English space and no work done in the unique space of Aviation English teaching and learning in a New Zealand setting. This is an important area that requires more research. However, any design-based research will only be able to occur once the conditions and perceptions towards the subject have been adjusted.

The design principles outlined in the discussion section recommend the changes and adjustments needed to current practice in order to deliver in an e-learning setting.

It is recommended that future research be carried out to enable explicit evaluation of a reimagined approach to Aviation English, including relevant changes to practice and the corresponding impact on participation, motivation and educational outcomes for students of aviation.

7 References

Akcaoglu, M., & Lee, E. (2016). Increasing social presence in e-learning learning through small group discussions. *The International Review of Research in Open and Distributed Learning*, *17*(3), 1-17

Alderson, J. C. (2010). A survey of Aviation English tests. *Language Testing*, *27*(1), 51-72.

Alderson, J. C. (2011). The politics of Aviation English testing. *Language Assessment Quarterly*, *8*(4), 386-403.

Armellini, A., & De Stefano, M. (2015). Social presence in the 21st century: An adjustment to the Community of Inquiry framework. *British Journal of Educational Technology*, *47*(6), 1202-1216.

Arnó-Macià, E., & Mancho-Barés, G. (2015). The role of content and language in content and language integrated learning (CLIL) at university: Challenges and implications for ESP. *English for Specific Purposes*, *37*, 63-73. https://doi.org/10.1016/j.esp.2014.06.007

Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology*, *4*(3), 359-373.

Barbour, R. S. (2001). Checklists for improving rigour in qualitative research: a case of the tail wagging the dog? *BMJ* 2001:322;1115 https://doi.org/10.1136/bmj.322.7294.1115

Bax, S. (2003). CALL—past, present and future. *System: An International Journal of Educational Technology and Applied Linguistics, 31*(1), 13-28. doi:10.1016/S0346-251X (02)00071-4

Beagle, L., & Davies, G. (2013). A blended learning course for the aviation industry: A case study. In B. Tomlinson & C. Whittaker (Eds), *Blended Learning in English Language Teaching: Course Design and Implementation* (pp.141-146). London, UK: British Council.

Blake, R. J. (2013). *Brave new digital classroom: Technology and foreign language learning* (2nd ed.). Washington, D.C.: Georgetown University Press.

Bloom, B. S., (1956). *Taxonomy of Educational Objectives*. White Plains, NY: Longman.

Bogdan, R., & Biklen, S. (2007). Qualitative research for education: An introduction to theory and practice. *Needham Heights, MA: Allyn and Bacon*.

Bowers, J., & Kumar, P. (2015). Students' perceptions of teaching and social presence: A comparative analysis of face-to-face and online learning environments. *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT)*, *10*(1), 27-44.

Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Cushing, S. (1994). *Fatal words: Communication clashes and aircraft crashes*. Chicago: University of Chicago Press.

Davis, N. E. (2018). Change with digital technologies in education: The Arena framework. New York Routledge

Dilley, P. (2004). Interviews and the Philosophy of Qualitative Research. *The Journal of Higher Education, 75*(1), 127-132. Retrieved from http://www.jstor.org.ezproxy.canterbury.ac.nz/stable/3838692

Dörnyei, Z., & Kubanyiova, M. (2014). *Motivating learners, motivating teachers: Building vision in the language classroom.* Cambridge, U.K.: Cambridge University Press.

Dörnyei, Z., Henry, A., & Muir, C. (2016). *Motivational currents in language learning: Frameworks for focused interventions*. Abingdon-on-Thames, U.K.: Routledge.

Dunlap, J. C., & Lowenthal, P. R. (2014). The power of presence: Our quest for the right mix of social presence in online courses. In A.P. Mizell & A. A. Piña (Eds.), *Real life distance education: Case studies in practice* (pp. 41-66). Charlotte, NC: Information Age Publishing

Educational Research Human Ethic Committee Information (2017). Retrieved from http://www.canterbury.ac.nz/humanethics/erhec/apply.shtml

Emery, H. J. (2014). Developments in LSP testing 30 years on? The case of Aviation English. *Language Assessment Quarterly, 11*(2), 198-215. doi:10.1080/15434303.2014.894516

Emery, H., Roberts, A., Goodman, R., & Harrison, L. (2008). *Aviation English: For ICAO Compliance.* Oxford, UK: Macmillan.

Farshad Nia, S., Davis, N., Cunningham, U., & Howard, J. (2018). Digital equity for ESOL students in a New Zealand secondary school analysed with Davis' Arena frame-work. In *Flexible Learning Association of New Zealand Conference: Inception to Infinity. 9-11 Apr 2018, Palmerston North, New Zealand* (pp. 121-126).

Fenton-Smith, B., & Humphreys, P. (2015). Language specialists' views on academic language and learning support mechanisms for EAL postgraduate coursework students: The case for adjunct tutorials. *Journal of English for Academic Purposes 20*, 40-55.

Glesne, C., & Peshkin, A. (1992). Meeting qualitative inquiry. *Becoming Qualitative Researchers: An Introduction,* (2nd edn.) New York: Longman.

Hamid, S., Waycott, J., Kurnia, S., & Chang, S. (2015). Understanding students' perceptions of the benefits of e-learning social networking use for teaching and learning. *The Internet and Higher Education*, *26*, 1-9. http://dx.doi.org/10.1016/j.iheduc.2015.02.004

Hamari, J., Koivisto, J., & Sarsa, H. (2014). *Does gamification work? a literature review of empirical studies on gamification*. In HICSS, '14 Proceedings of the 2014 47th Hawaii International Conference on System Sciences (pp. 3025-3034). IEEE.

Hubbard, P., & Levy, M. (2006). *Teacher education in CALL*. Amsterdam; Philadelphia, PA; John Benjamin's Pub. Co.

Hwang, W.-Y., Shih, T. K., Ma, Z.-H., Shadiev, R., & Chen, S.-Y. (2016). Evaluating listening and speaking skills in a mobile game-based learning environment with situational contexts. *Computer Assisted Language Learning, 29*(4), 639-657.doi:10.1080/09588221.2015.1016438

ICAO. (2009). *Guidelines for Aviation 45 English Training Programmes.* Cir 323, ICAO. Retrieved from https://www.icao.int/safety/lpr/Documents/323_en.pdf

ICAO (2010). Manual on the implementation of ICAO language proficiency requirements. (2nd ed.). Montreal: International Civil Aviation Organisation

Istifci, I. (2016, October). *An Online Language Learning Program for Students in Aviation Departments.* In ECEL 2016, 15th European Conference on e-Learning (p. 279). Academic Conferences International Limited

Jeong, H., & Hmelo-Silver, C. E. (2016). Seven affordances of computer-supported collaborative learning: How to support collaborative learning? How can technologies help? *Educational Psychologist*, *51*(2), 247-265.

Karagiorgas, D. N., & Niemann, S. (2017). Gamification and Game-Based Learning. *Journal of Educational Technology Systems, 45*(4), 499-519.

Kim, S. H. (2015). Communicative Language Learning and Curriculum Development in the Digital Environment. *Asian Social Science*, *11*(12), 337-352

Ko, C. J. (2012). A case study of language learners' social presence in synchronous CMC. *ReCALL*, 24(1), 66-84.

Kolb, D. (2000). The process of experiential learning. In Robert L. Cross, Jr & Sam B. Israelit (Eds) *Strategic learning in a knowledge economy* (pp. 313-331). Woburn, MA: Butterworth Heinemann

Kreijns, K., Kirschner, P. A., Jochems, W., & Van Buuren, H. (2004). Determining sociability, social space, and social presence in (a)synchronous collaborative groups. *Cyberpsychology & Behavior, 7*(2), 155-172. doi: http://dx.doi.org/10.1089/109493104323024429

Kreijns, K., Kirschner, P. A., Jochems, W., & Van Buuren, H. (2007). Measuring perceived sociability of computer-supported collaborative learning environments. *Computers & Education, 49*(2), 176-192. doi: http://dx.doi.org/10.1016/j.compedu.2005.05.004

Kumar, S. (2015) 5 *Common Problems Faced By Students In eLearning And How To Overcome Them*. Retrieved from https://elearningindustry.com/5-common-problems-faced-by-students-in-elearning-overcome

Lai, C., & Zheng, D. (2017). Self-directed use of mobile devices for language learning beyond the classroom. *ReCALL*, *30*(3), 299-318. doi:10.1017/S0958344017000258

Levy, M. (2015). The role of qualitative approaches to research in CALL contexts: Closing in on the learner's experience. *CALICO Journal, 32*(3), 554-568. doi:10.1558/cj.v32i3.26620

Liu, X. (2013). Action research on the effects of an innovative use of CALL (Computer Assisted Language Learning) on the listening and speaking abilities of Chinese university intermediate level English students. (Doctoral thesis, University of Exeter, UK). ProQuest Dissertations Publishing. https://ore.exeter.ac.uk/repository/handle/10871/14067

Martirosyan, N. M., Hwang, E., & Wanjohi, R. (2015). Impact of English proficiency on academic performance of international students. *Journal of International Students 5*(1): 60-71.

Mattei-Lownes, J. J. (2018). *Applications and implications of natural language processing and machine translation on motivation for learning Chinese.* ProQuest Dissertations Publishing.

Meihami, H., Meihami, B., & Varmaghani, Z. (2013). CALL in the form of simulation games: Teaching English vocabulary and pronunciation through Sims. *International Letters of Social and Humanistic Sciences*, *8*(57-65).

Mills, D., & Morton, M. (2013). *Ethnography in education*. London: Sage Publications.

Muir, C (2016). *The dynamics of intense long-term motivation in language learning: Directed Motivational Currents in theory and practice.* (PhD thesis, University of Nottingham, UK) http://eprints.nottingham.ac.uk/id/eprint/33810

Mutch, C. (2005). *Doing educational research: A practitioner's guide to getting started*. NZCER Press.

Mutambik, I. M., Lee, J., & Foley, Y. (2018, July). *Identifying the Underlying Factors of Students' Readiness for E-Learning in Studying English as a Foreign Language in Saudi Arabia: Students' and Teachers' Perspectives.* In proceedings of the 2018 Computing Conference: Intelligent Computing (pp. 265-279). Springer, Cham.

Ortlipp, M. (2008). Keeping and Using Reflective Journals in the Qualitative Research Process. *The Qualitative Report*, *13*(4) 695-705. Retrieved from https://nsuworks.nova.edu/tqr/vol13/iss4/

Price, J. L., & Mueller, C. W. (1986). *Handbook of organizational measurement*. Marshfield, MA: Pitman. Or Handbook of organizational measurement", International Journal of Manpower, Vol. 18 Issue: 4/5/6, pp.305-558

Prior, D. D., Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitude, digital literacy and self-efficacy: Flow-on effects for e-learning learning behavior. *The Internet and Higher Education*, *29*, 91-97.

Ranchhod, A., Gurău, C., Loukis, E., & Trivedi, R. (2014). Evaluating the educational effectiveness of simulation games: A value generation model. *Information Sciences*, *264*, 75-90.

Rashid, T. & Asghar, H.M. 2016. Technology use, self-directed learning, student engagement and academic performance: Examining the interrelations. *Computers in Human Behavior. 63*, 604–612.

Reason, J (1998). Achieving a safe culture: Theory and practice, *Work & Stress,.12*(3), 293-306 1998.

Richards, J. C. (2006). *Communicative Language Teaching Today*. New York, Cambridge University Press.

Reinders, H., & Wattana, S. (2014). Can I say something? The effects of digital game play on willingness to communicate. *Language, Learning & Technology, 18*(2), 101-123.

Rosen, L. D., Whaling, K., Carrier, L. M., Cheever, N. A., & Rokkum, J. (2013). The media and technology usage and attitudes scale: An empirical investigation. *Computers in human behavior*, *29*(6), 2501-2511.

Spector, M., Merrill, M.D., Elen, J., & Bishop, M.J. (Eds.) (2013). *Handbook of Research on Educational Communications and Technology*. Springer New York. Retrieved from http://www.ebrary.com

Santos, M. G., Pacheco, V. A., Reyes, R. R., & Vargas, G. V. (2018). Analysis of the Methodology Applied in Aviation English Course at a Military School in Salinas. *Journal of Education and Human Development*, *7*(3), 39-44. https://doi.org/10.15640/jehd.v7n3a5

Taylor, S. J., Bogdan, R., & DeVault, M. (2015). I*ntroduction to qualitative research methods: A guidebook and resource* (4th ed.). New Jersey, USA: John Wiley & Sons.

Toffoli, D., & Sockett, G. (2015). University teachers' perceptions of e-learning informal learning of English (OILE). *Computer Assisted Language Learning*, *28*(1), 7-21. https://doi.org/10.1080/09588221.2013.776970

Vygotsky, L. S. (1986). *Thought and language-Revised edition*. Kozulin, A. (Ed.).

Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *The Modern Language Journal, 81*(4), 470-481. doi:10.1111/j.1540-4781. 1997.tb05514.x

Warschauer, M., 2000. *The death of cyberspace and the rebirth of CALL.* Plenary speech given at the ‘‘CALL for the 21st Century’’ IATEFL and ESADE Conference, 2 July 2000,

Barcelona, Spain. Available from mhttp://www.gse.uci.edu/ markw/cyberspace.ht ml

Wang, Y., & Wu, L. (2016). *Aviation English learning with a MALL approach*. 2016 5th International Conference on Computer Science and Network Technology (ICCSNT), Changchun, China. (pp. 362-365). IEEE.

Xue, H., (2017). *Autonomy in English Learning and Academic Success: a Case Study*. In International Conference on Education Innovation and Social Science (ICEISS 2017). Atlantis Press.

Yang, Y. F. (2011). Engaging students in an online situated language learning environment. *Computer Assisted Language Learning*, *24*(2), 181-198.

Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and Stake. *The qualitative report*, *20*(2), 134-152.

Yin, R. K. (2002). *Case study research: Design and methods*. Applied Social Research Methods Series, Vol 5. London: Sage Publications.

Zou, B. (2013). Teachers' support in using computers for developing students' listening and speaking skills in pre-sessional English courses. *Computer Assisted Language Learning 26*(1), 83-99.

8 Appendices

8.1 Data Analysis - Survey

The survey was divided into 6 question types.

Demographic and English language information

Goal orientedness and ownership

Salient facilitative structural information – what areas interest them

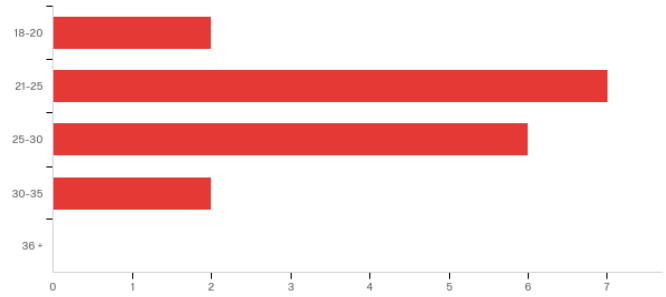
Progress

Emotional Positivity

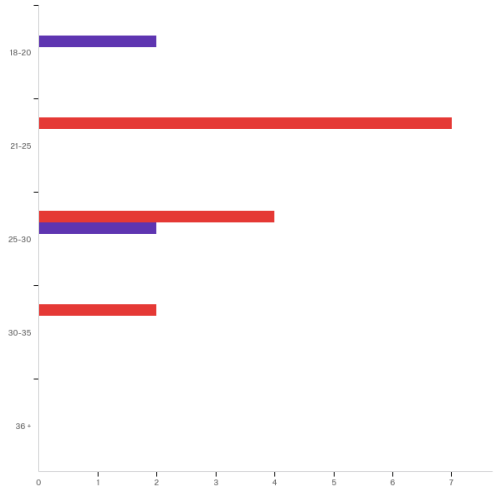
Summary Demographic and English Language Information

The age and gender information confirmed industry norms in terms of age and male-dominated gender patterns.

Q1 - What is your age?



Q2 - What is your gender?



Female

Male

Q3 - What is your country of origin?

5 Vietnam

1 Saudi Arabia

1 China

1 France

2 Oman

2 India

1 France

2 Hong Kong

1 Italy

Q4 - What is your native language (first language)?

1 Arabic

1 Chinese

1 French

1 Gujarati

5 Vietnamese

3 Cantonese

1 French

1 Italian

1 Hindi

Q5 - What languages do you speak fluently?

Two respondents stated that they spoke only one language fluently. This was Vietnamese. This is of interest considering all the respondents would have had to have passed an IELTS test to gain access to the course they are on or were enrolled in. This represents 12% of the respondents who do not think they speak another language well enough to say they are fluent.

Nine respondents stated that they spoke two languages fluently (including their 1st language). Eight of the respondents stated that English was their second fluent language. One spoke Cantonese and Mandarin (not English).

Four respondents said they spoke three languages fluently. All of these included English as a fluent language.

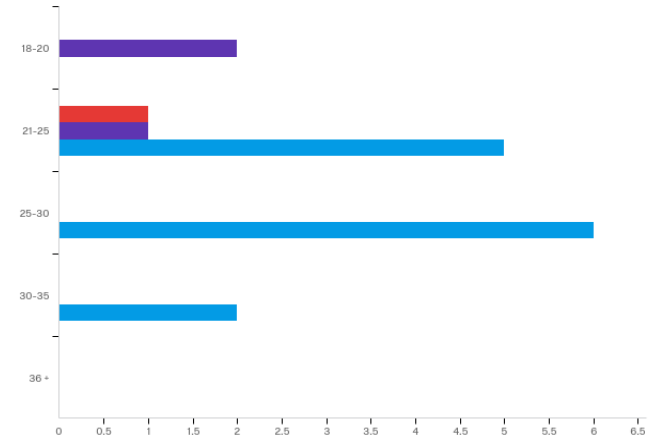
It is of interest to note that a total of 18% of respondents did not think they spoke English fluently. This is concerning, considering that all of these respondents would have had to pass an IELTS standards test to be accepted onto their course of study and we can assume that, if they are working in aviation at this point, they would have had to pass the ICAO test.

How did they get accepted into a course or pass the required standards without speaking English fluently?

Are 18% of aviators doing their job/study without the need for fluent English?

Could this be a contributing factor to the lack of motivation - they know they can get by without it?

Q6 - If English is not your first language, how long have you been speaking English?



Less than 2 years

2-5 years

5 or more years

Twenty-three percent of respondents have been speaking English for less than five years.

Q12 - What Aviation Course are you studying?

Of the 17 respondents, eight are studying to be or already are Air Traffic Controllers. Nine are studying or are pilots.

Q7 - Where did you learn to speak English?

This is a multiple option question. It is evident that the learning of English took place in multiple locations for some learners.

		18-20	21-25	25-30	30-35	36 +	Total
1	At primary school (4-13 years)	1	5	5	1	0	12
2	At secondary school (14-18 years)	0	4	2	2	0	8
3	At a tertiary institution (university or other)	0	3	2	3	0	8
4	At home	0	2	1	2	0	5
5	Other (please state)	1	0	0	0	0	1

Other: Private tutor

Q8 - How did you learn English?

This is a multiple option question. It is evident that the learning of English was facilitated in a variety of ways for some learners.

#		18-20	21-25	25-30	30-35	Total
1	Using books	2	6	3	2	13
2	Online	0	3	1	1	5
3	In a class with a teacher	1	7	5	2	15
4	Using English at home	1	2	1	2	6

5	Living and learning in an English-speaking country	0	2	4	1	7
6	Other (please state)	1	2	0	1	4

OTHER: Watching films and music videos in English, Movies/TV in English, Video games, movies

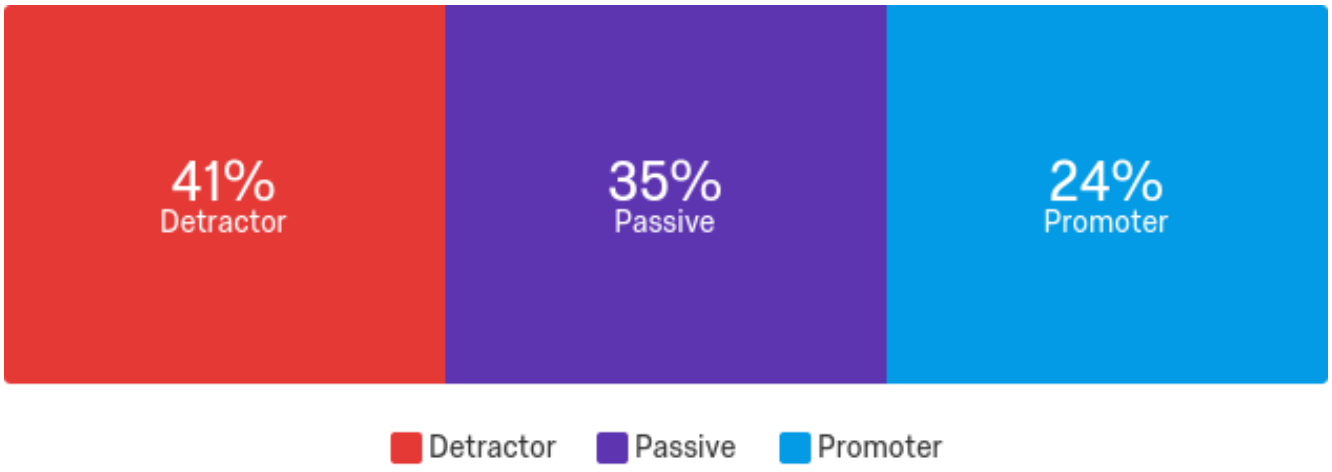
The predominant forms of learning English are in class with a teacher and using books. This would indicate that most of the English has been acquired in a traditional classroom-based setting. There is data that shows that some respondents did learn in an online environment, and if you add the 'other' to this, which are all asynchronous technology-based environments, there is a total of nine respondents who have used a non-face-to-face learning platform to build English skills.

Does the evidence of existing online learning mean that the students are open to the concept?

Thinking about those respondents that selected 'other' and put tech-based options here rather than select 'online' as an option, could this mean that perhaps students don't see 'online' as real learning?

Is the online learning they have done self-directed or teacher directed?

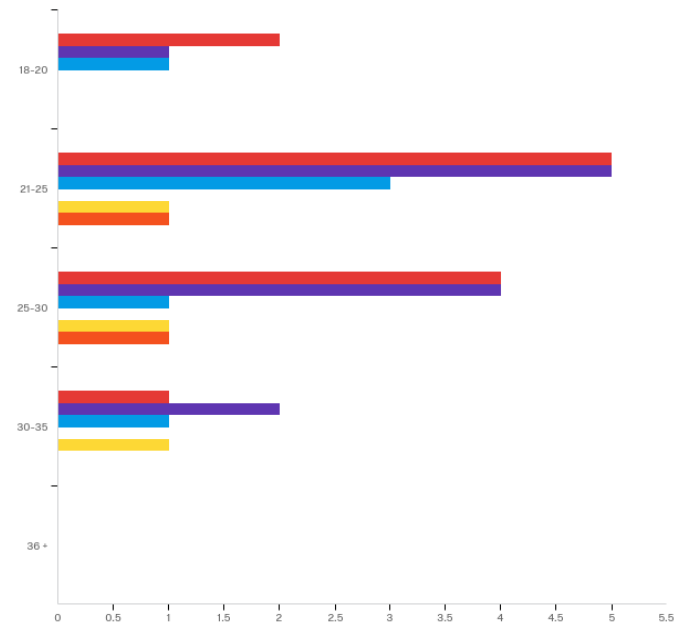
Q9 - On a scale from 0-10, how would you rate your conversational English?



If 41% of respondents indicate that they don't think their conversational English is good, what impact does this have on non-standard phraseologies in the aviation environment?

Goal Orientatedness and Motivation

Q11 - Why did you choose to study aviation/air traffic control?



I am passionate about aviation

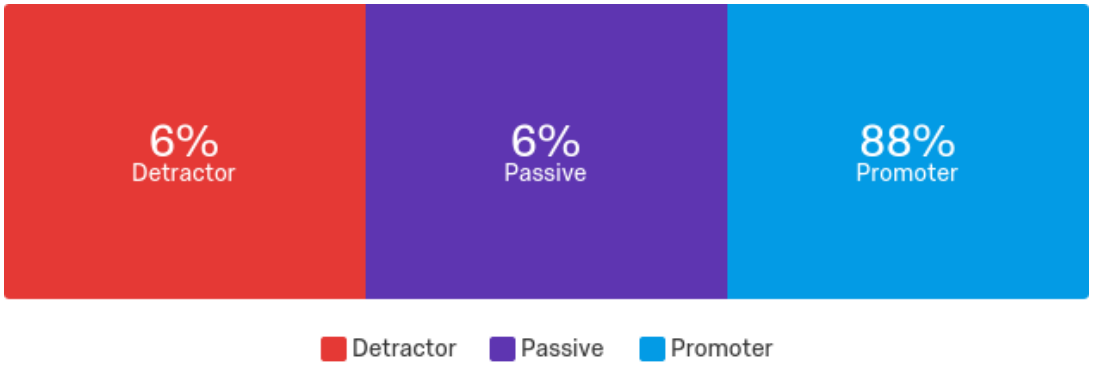
I want a good career

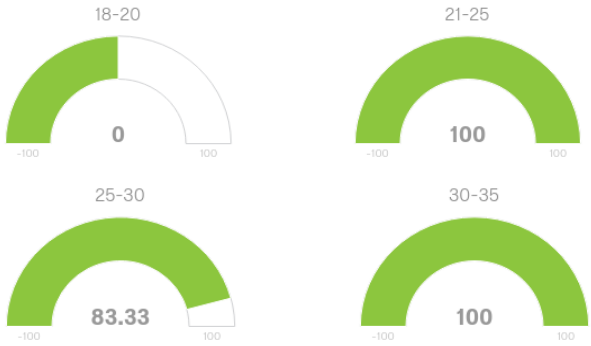
I want a career that pays well

I know someone in aviation, and I want to be like them

Passion for aviation and the desire for a good career are the main motivators to studying aviation, with pay and familiarity with the career being secondary drivers.

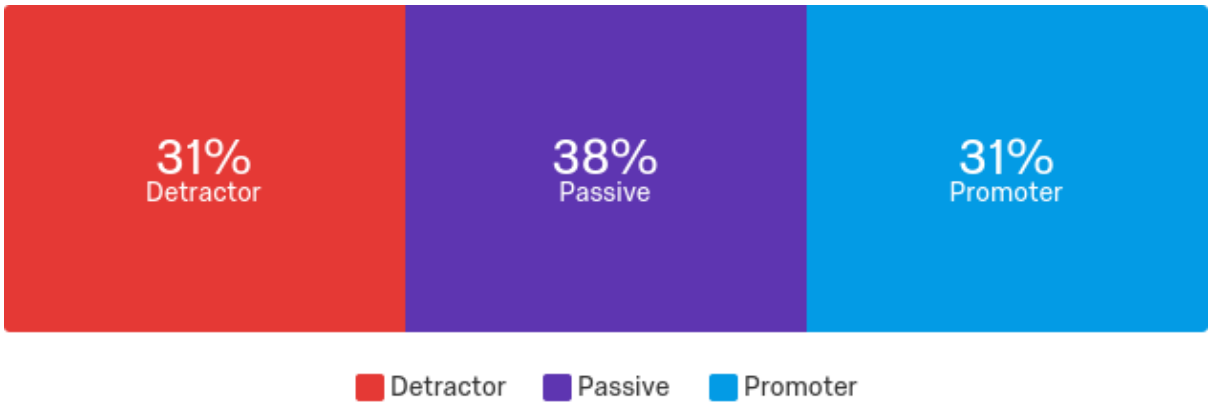
Q13 - On a scale from 0-10, how important do you think it is to communicate well in ENGLISH in an AVIATION environment?



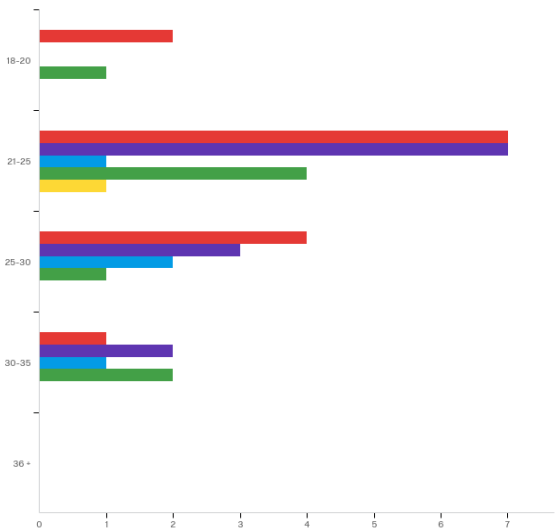


It is interesting to note that, while 6% overall don't think that it is important to communicate well in English in an aviation environment, 100% of those over 30 think that it is important. Perhaps these are operational aviators who now know the importance of it in operational environments.

Q14 - On a scale from 0-10, how would you rate your AVIATION ENGLISH?



Q27 - Thinking about your study- how did you (or will you) maintain motivation to complete the aviation course?



By attending the classes and completing the tasks

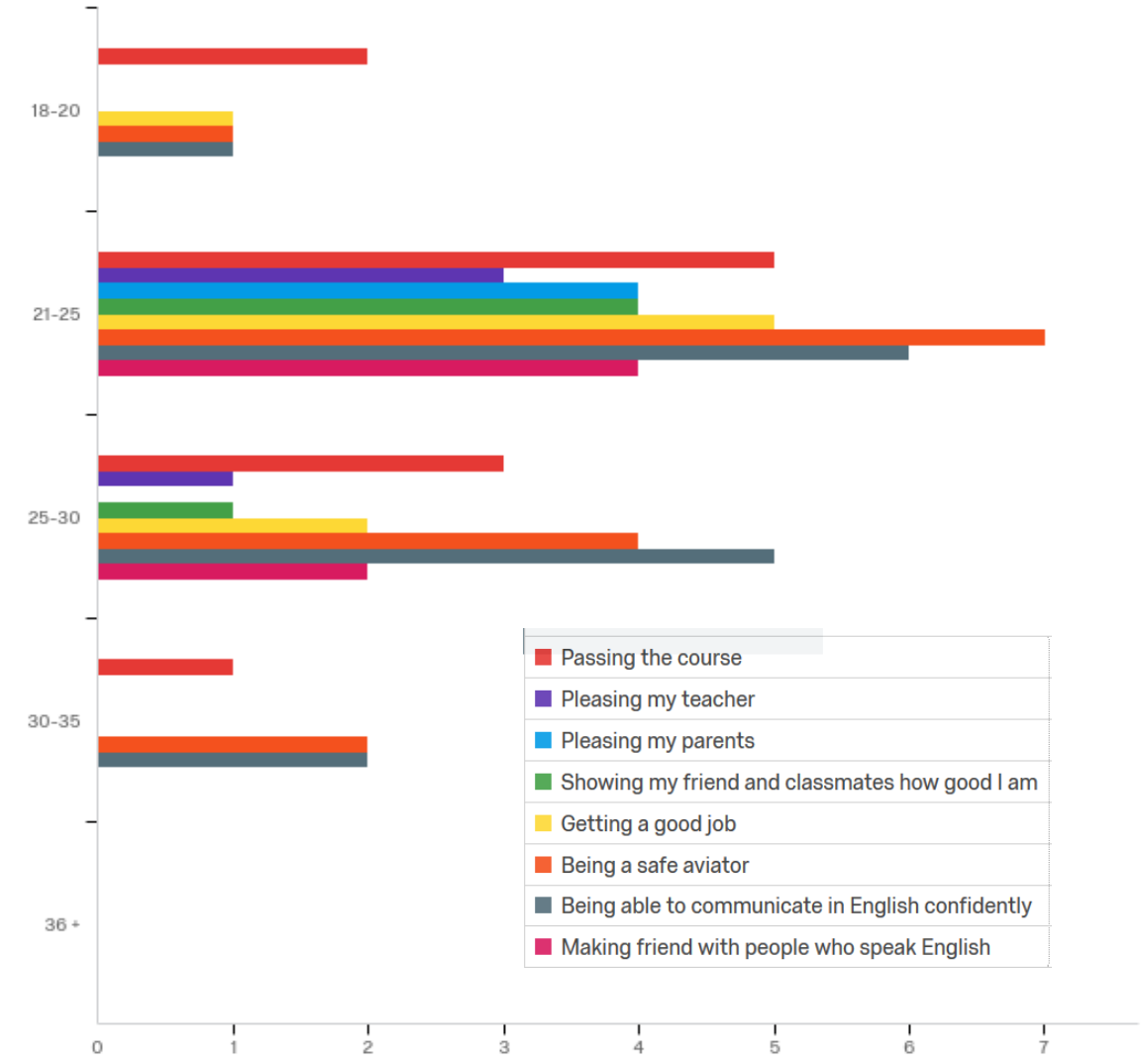
By setting regular goals for myself

The teacher will motivate me

I did (or will do) the work because it is fun

Other - I think about the well-paid job I will get.

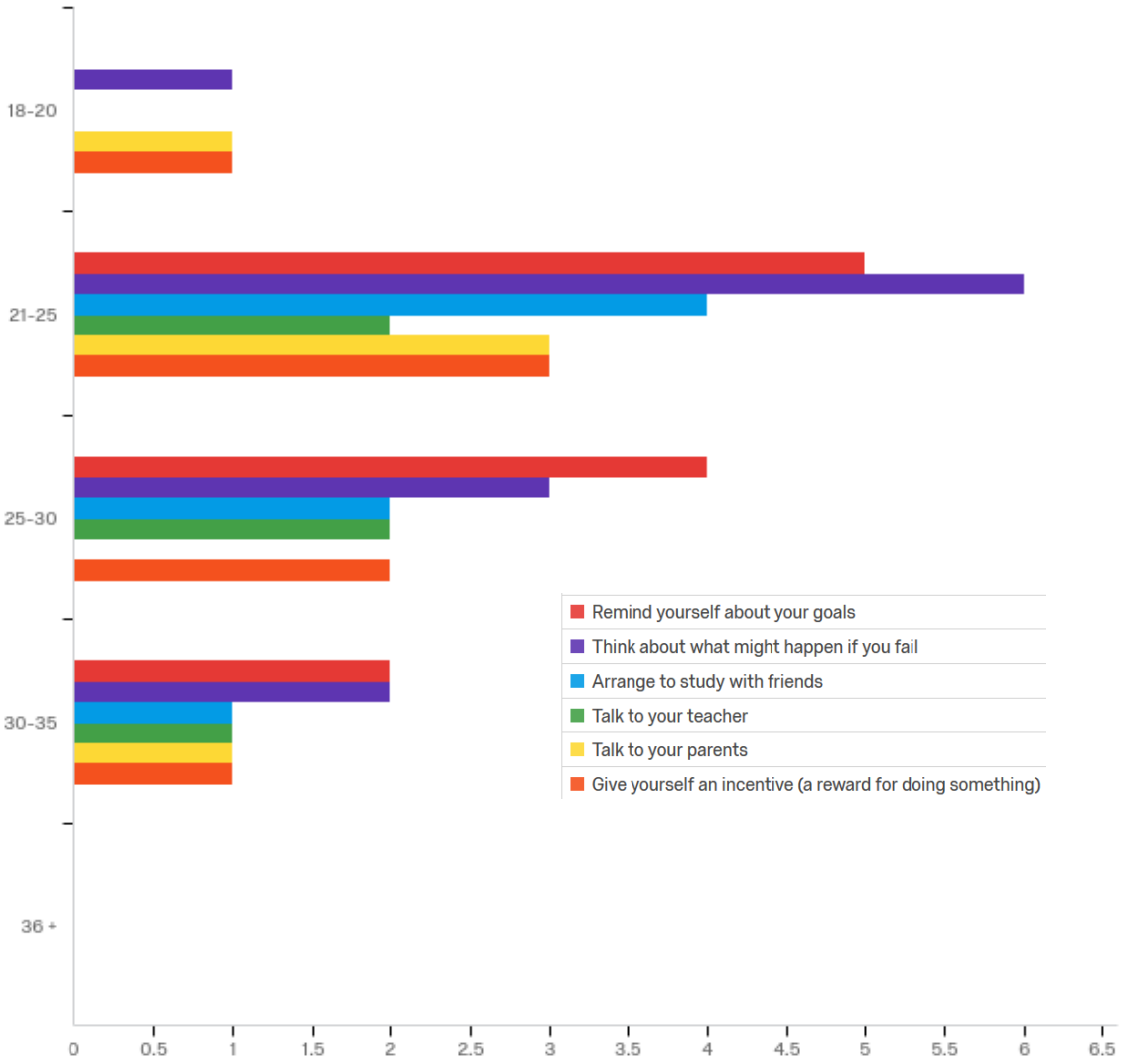
Q28 - What did (or what will) motivate you to improve your Aviation English - please indicate which of the following motivated you-



It is interesting to note that the 21-25 age group have the most 'social' indicators. 'Pleasing' is important, as is proving competency to peers, along with making friends.

This could indicate the importance of including social networks and group communication activities to allow students to build relationships and show skills.

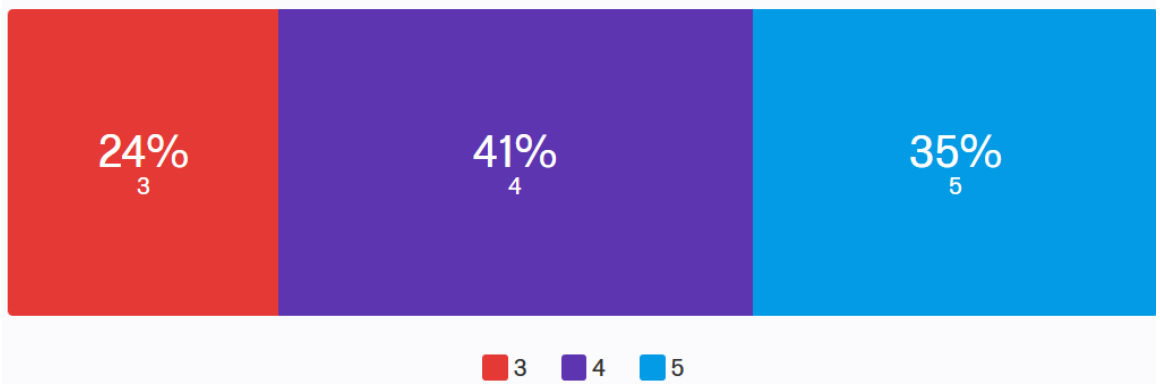
Q32 - At times you may have felt unmotivated to study. What did you do to improve your motivation to study?



Consequences of failure are a strong motivation through all the age groups. Talking to friends is also a high indicator.

Salient Facilitative Structural Information

Q15 - How would you rate your skills and confidence to work in an online environment? (scale 1 poor- 5 excellent)



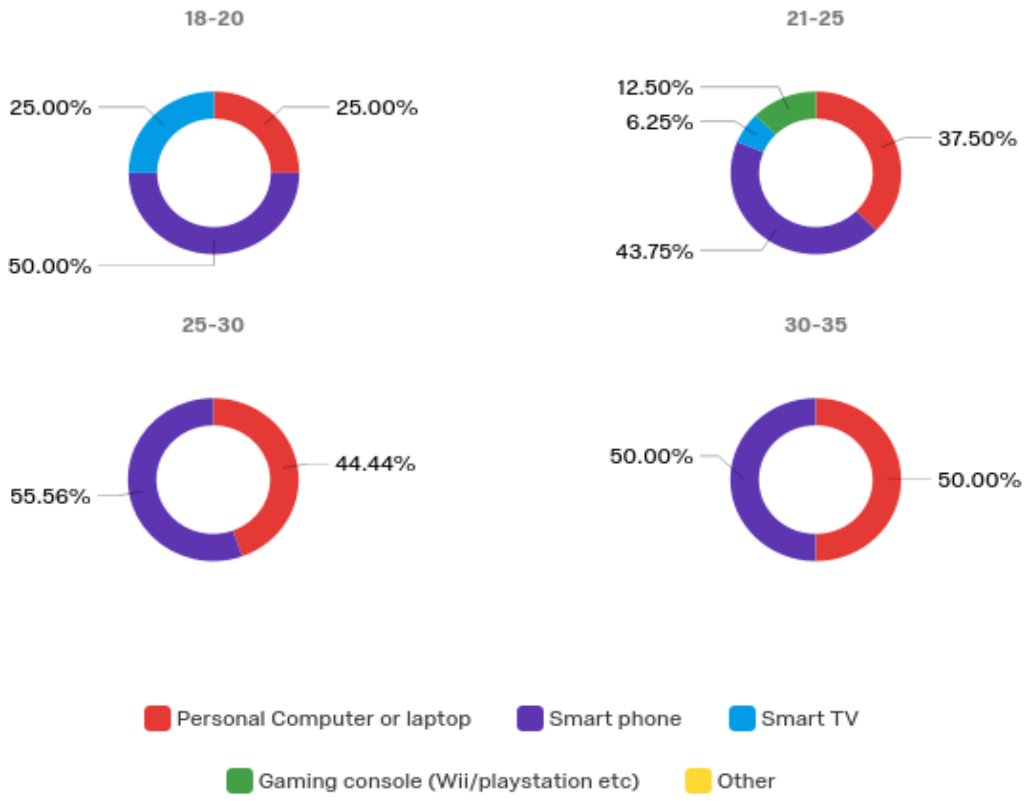
Q16 - On average how much time do you spend online each day?

Time spent online	Mean
18-20	8.00
21-25	5.14
25-30	5.33
30-35	2.50
36 +	0.00

Based on questions 15 and 16, there is an indication that the respondents feel confident to work online and the dominant age group spend between 5 and 8 hours online each day.

Can we assume that they are happy to spend time online?

Q17 - What devices do you use every day?



Q18 - Approximately what amount of time do you spend each week on these online activities?

18-20

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Communication with friends and family	14.00	88.00	51.00	37.00	1369.00	2
2	Studying	7.00	50.00	28.50	21.50	462.25	2
3	Shopping	34.00	53.00	43.50	9.50	90.25	2
4	Gaming	19.00	43.00	31.00	12.00	144.00	2
5	Watching programmes and content	72.00	72.00	72.00	0.00	0.00	1
6	Looking at and posting on social media	83.00	83.00	83.00	0.00	0.00	1
7	Reading content (news, books)	36.00	36.00	36.00	0.00	0.00	1
8	Listening to music and/or podcasts	85.00	85.00	85.00	0.00	0.00	1
9	Other	23.00	23.00	23.00	0.00	0.00	1

21-25

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Communication with friends and family	4.00	45.00	21.71	14.44	208.49	7
2	Studying	4.00	40.00	19.86	14.08	198.12	7
3	Shopping	0.00	20.00	6.17	6.72	45.14	6
4	Gaming	3.00	60.00	29.83	18.34	336.47	6
5	Watching programmes and content	2.00	39.00	21.50	13.18	173.58	6
6	Looking at and posting on social media	3.00	69.00	32.57	23.92	572.24	7
7	Reading content (news, books)	2.00	91.00	24.17	30.41	924.47	6
8	Listening to music and/or podcasts	4.00	70.00	31.43	24.28	589.67	7
9	Other	0.00	0.00	0.00	0.00	0.00	1

25-30

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Communication with friends and family	5.00	63.00	25.67	18.35	336.56	6
2	Studying	10.00	51.00	22.67	15.16	229.89	6
3	Shopping	0.00	10.00	4.25	3.77	14.19	4
4	Gaming	0.00	20.00	10.50	8.65	74.75	4
5	Watching programmes and content	3.00	28.00	13.20	8.52	72.56	5
6	Looking at and posting on social media	10.00	29.00	16.40	6.53	42.64	5
7	Reading content (news, books)	4.00	22.00	11.00	7.21	52.00	6
8	Listening to music and/or podcasts	5.00	24.00	14.00	7.77	60.40	5
9	Other	0.00	0.00	0.00	0.00	0.00	0

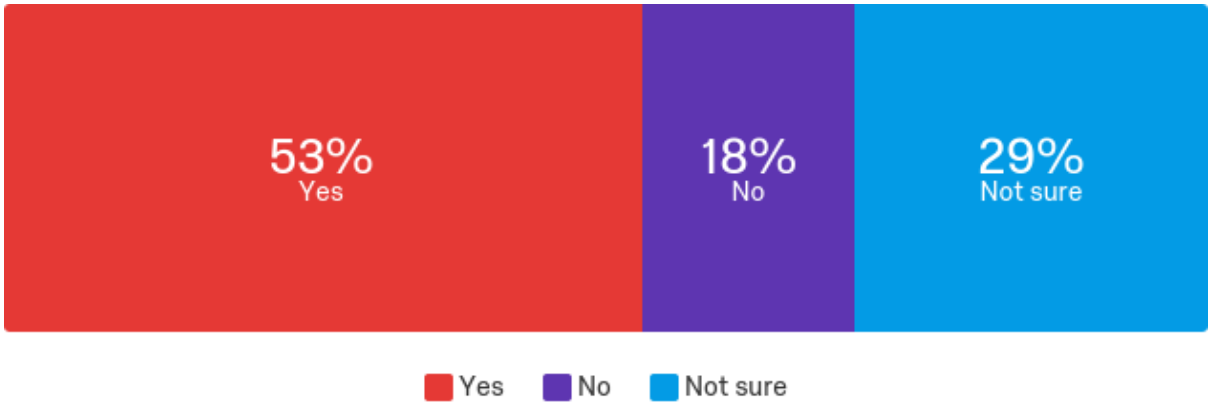
30-35

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Communication with friends and family	6.00	60.00	33.00	27.00	729.00	2
2	Studying	4.00	100.00	52.00	48.00	2304.00	2
3	Shopping	20.00	20.00	20.00	0.00	0.00	1
4	Gaming	0.00	0.00	0.00	0.00	0.00	0
5	Watching programmes and content	0.00	0.00	0.00	0.00	0.00	0
6	Looking at and posting on social media	1.00	30.00	15.50	14.50	210.25	2
7	Reading content (news, books)	11.00	100.00	55.50	44.50	1980.25	2
8	Listening to music and/or podcasts	0.00	30.00	15.00	15.00	225.00	2
9	Other	0.00	0.00	0.00	0.00	0.00	0

The amount of time spent studying online ranges from approximately 20 hours per week for the 20-25 age group up to the 30-35 age group, who spend an average of 52 hours studying online each week.

Could the fact that older respondents spend more time studying be because a lot of their aviation proficiency training is done online?

Q20 - Have you ever done any online learning? (that is, without a face-to-face teacher).



Q21 - If you have you ever studied using an online course, please state what you were learning or name the course you were doing. (If too numerous to note, please just put a number and the last two courses you completed)

Online IELTS (International English Language Testing System) and TOEIC (Test of English for International Communication)

Camly – photo editing software

Learning Spanish course for beginners

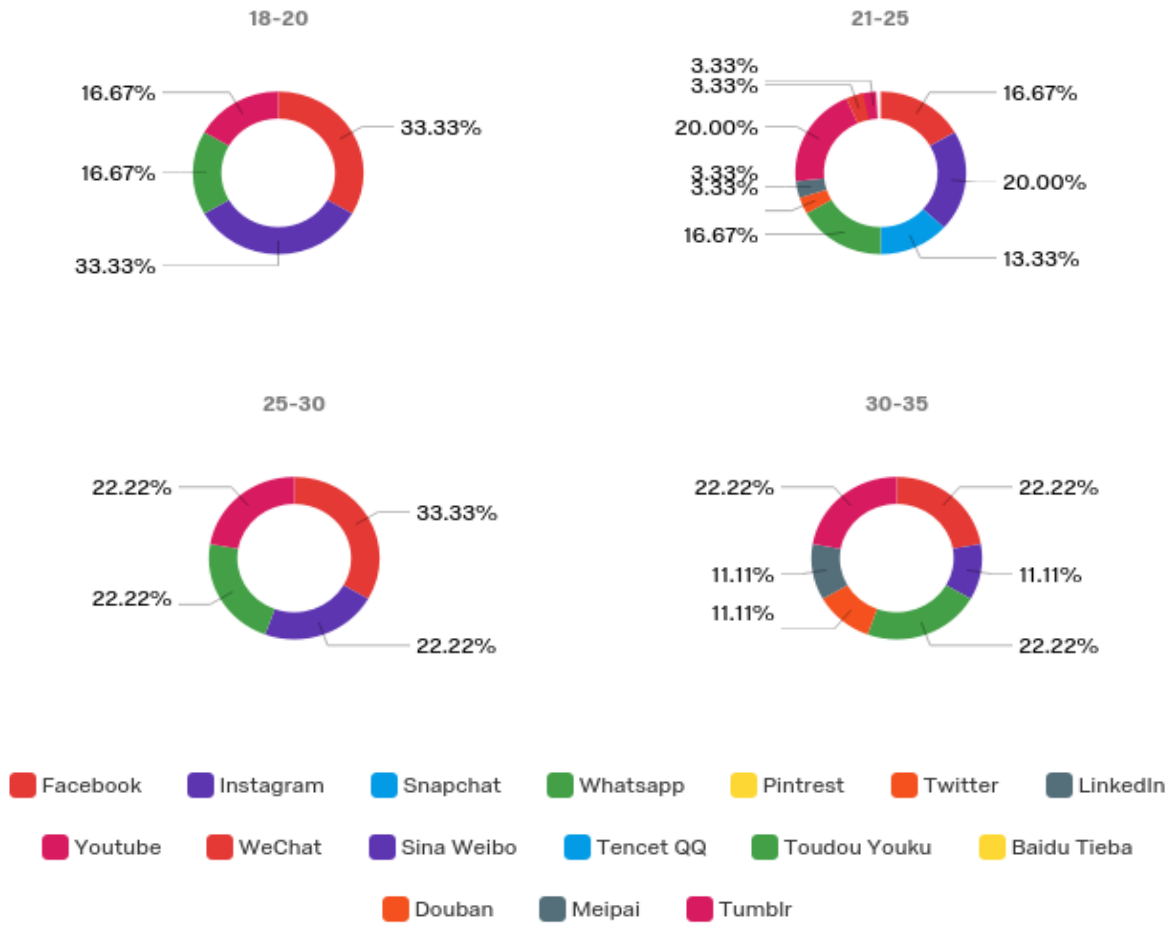
Padpilot atpl- *Padpilot* is an online tool for anyone who wants to study for a commercial pilot licence or who simply wishes to improve their piloting knowledge and skills.

YouTube

Banking-related (online training provided by my previous employer)

Maths, Physics

Q22 - Below is a list of commonly used social media platforms. Please check any that you use daily.



The most commonly-used applications across the group are (in order) Facebook, Instagram, YouTube, WhatsApp (a messaging app that is available in China).

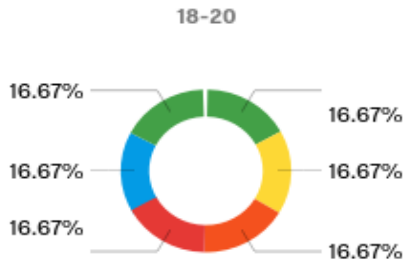
Q24 - What language do you communicate in on social media?

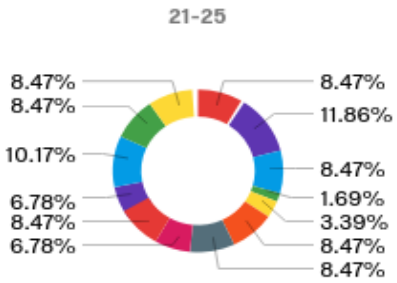
Thirteen out of 17 respondents said they use English and their 1st language on social media.

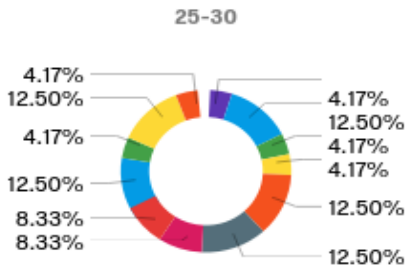
Only three respondents said they only use English on social media.

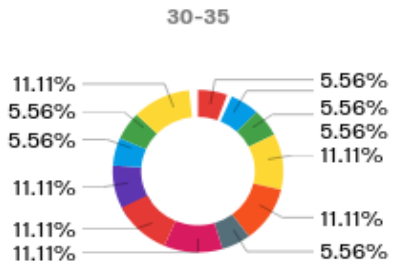
Does this indicate that, if students are using social media as part of their learning, they will use their 1st language as a preference?

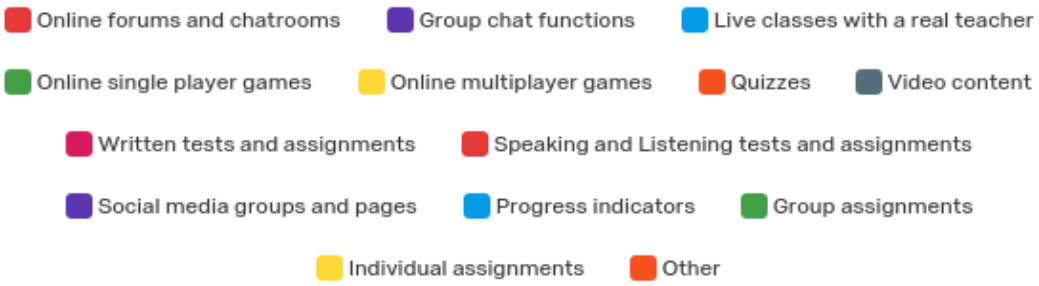
Q34 - If you were to study Aviation English in an online environment, what things do you think should be included in the course?









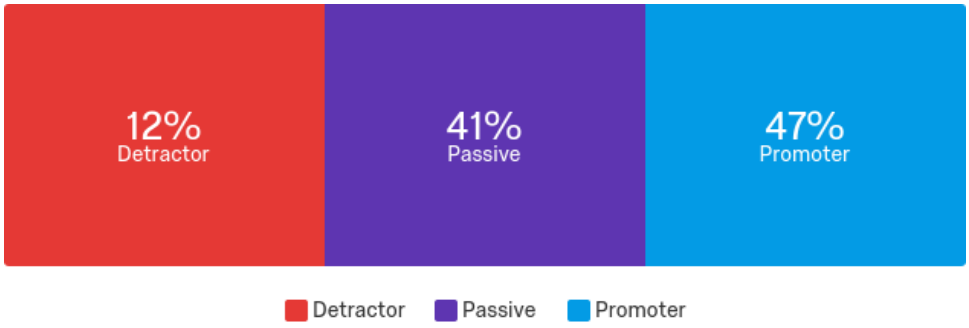


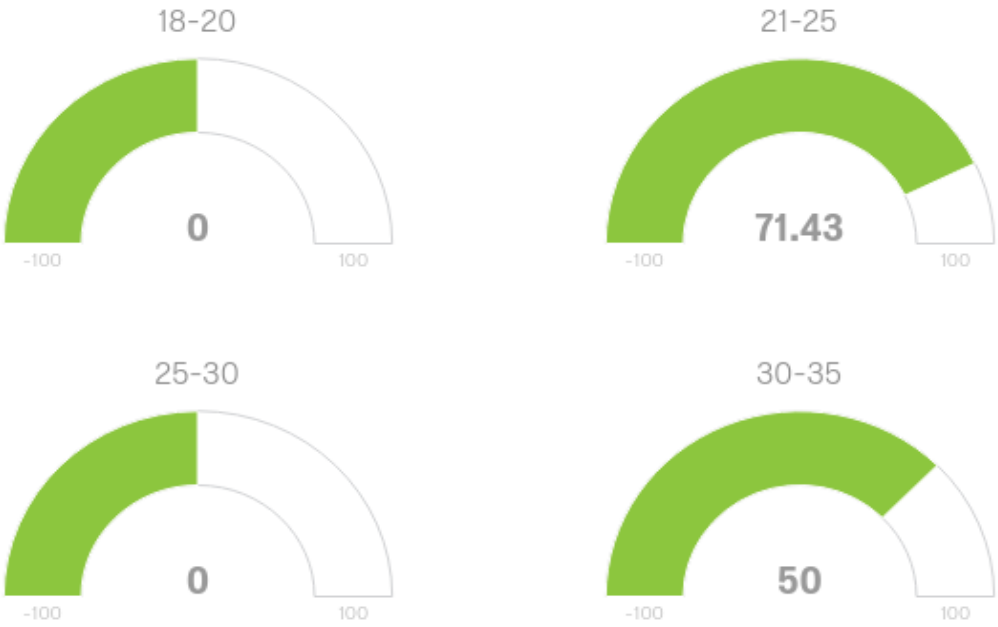
Other: Actual interaction between pilot trainee and ATC trainee, with supervision

This indicated that the respondents are open to a range of online activities.

Emotional Positivity

Q25 - Thinking about the requirement to be able to use Aviation English- what are your feelings towards this subject?

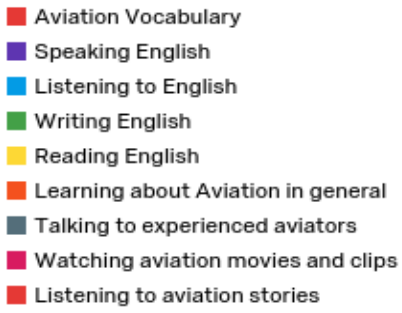




It is interesting to note that there are similar passive and promotor indicators and that, when this is viewed in the age group categories, the strongest promotors are the 30-35 age group. This is reinforcing the results in question 13 which asked, "How important do you think it is to communicate well in ENGLISH in an AVIATION environment?"

Q26 - Thinking about learning Aviation English, please rate in order the things you would be most interested in doing.

This was the list of options:



DOMINANCE BY AGE GROUP-

18-20 1st Aviation vocab

21-25 1st equal Aviation vocab, reading and writing English,

25-30 1st speaking English

30-35 1st writing English

Again, the age variation is interesting.

Is Q26 illustrating an understanding of the progression: Vocab → Speaking → Writing?

Do students not understand the importance of the speaking competency, or perhaps they prefer not to do it because it is too hard at the moment?

Q29 - In your opinion, what is the best way to get better at Aviation English?

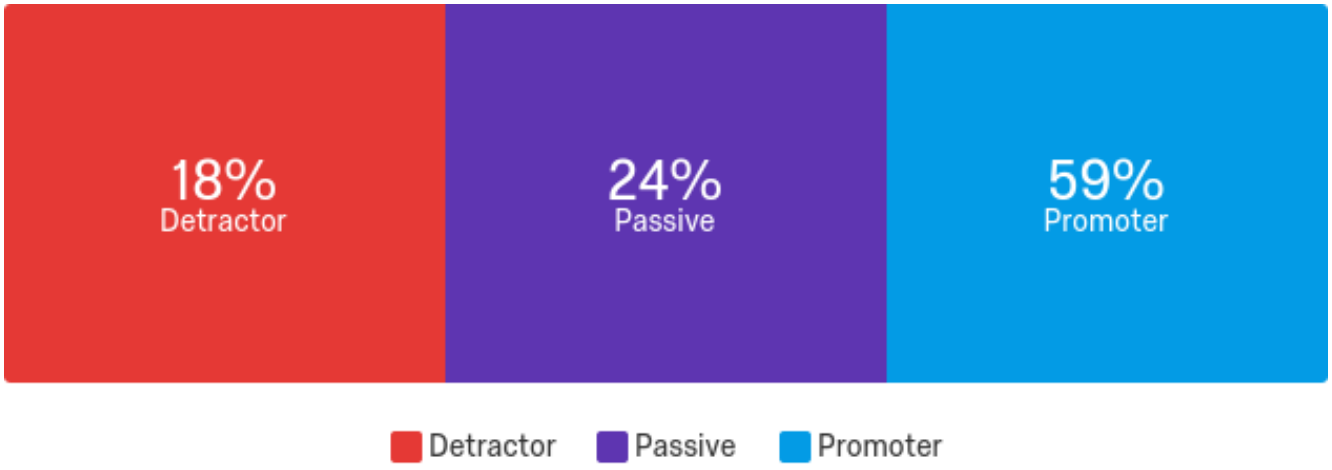
#	Question	18-20	21-25	25-30	30-35	36 +	Total
1	In a structured, timetabled class time	0	0	0	0	0	0
2	By having real life opportunities to speak Aviation English	1	7	4	1	0	13
3	By working with other students to practise speaking and listening	0	0	2	0	0	2
4	To do it in my own time rather	0	0	0	0	0	0

than in a fixed timetabled class					

It is interesting to note that no respondents indicated that a scheduled class was the best way to learn Aviation English and there was a very strong dominance for 'real life opportunities' to speak.

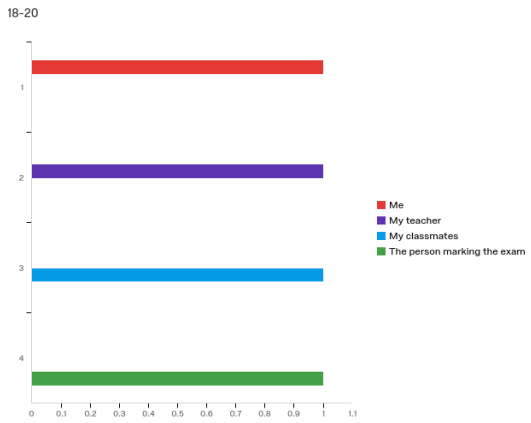
Considering the results in question 26 (where reading and writing are strong preference activities) do perhaps students not understand that speaking is a priority? They want real life experiences but does their knowledge of language learning mean that they feel they should still be focusing on reading and writing?

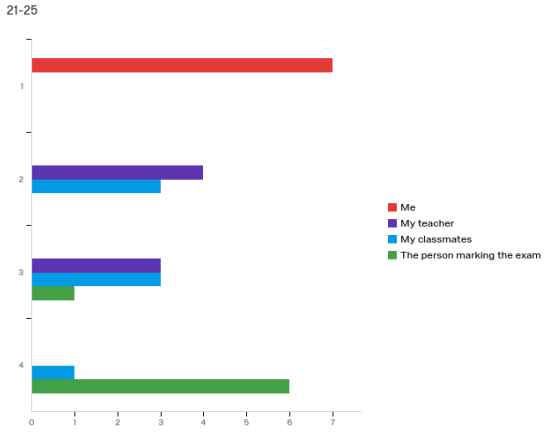
Q10 - On a scale from 0-10, how much do you enjoy communicating in English?

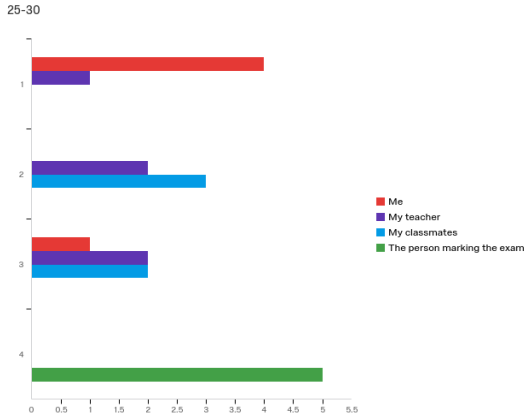


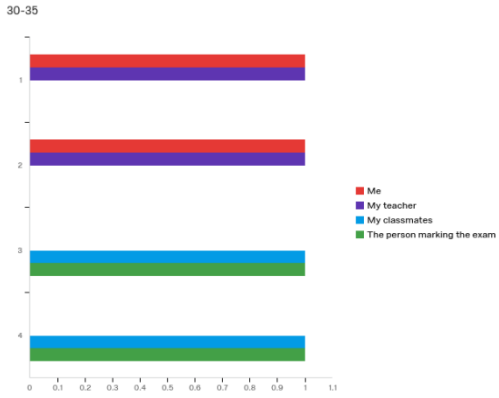
There is an interesting co-relation here with question 6. Eighteen per cent of respondents in question 6 did not list English as a language they spoke fluently. Here 19% say they don't enjoy speaking English.

Q30 - Who do you think would have the greatest impact on your success? Please rank in order.









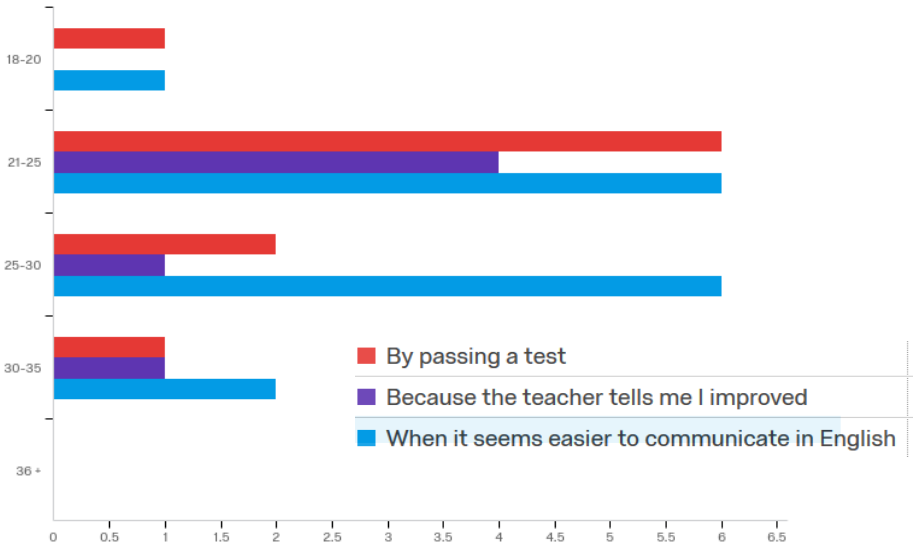
POINTS OF INTEREST

It is interesting to note in the 25-30 age group that there is a lower ‘me’ selection rate.

All age groups gave strong dominance to ‘the person marking the exam’.

The researcher wonders if this indicates the distrust in the testing theme that has emerged from the interviews.

Q31 - How do you know you are improving?

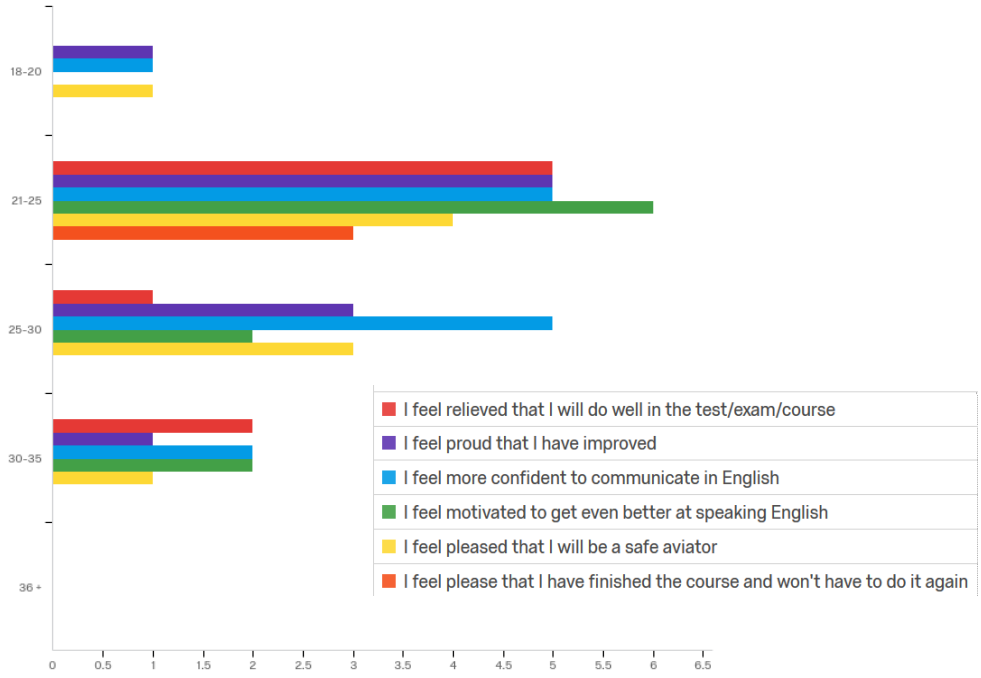


Again, here is it interesting to note that, while you would expect that respondents would think that the test is a strong indicator of improvement, many did not. The 18-20 and 30-35 age groups rated this very low.

Could this indicate again that there is a distrust of the test?

Perhaps is instinctive to trust one's own judgement and experiences in speaking English rather than a test.

Q33 - How does it feel when you know you are improving?



Of most interest in this answer is the 21-25 years' dominance of feeling relieved that they will do well and also that that is the course finished and I won't have to do it again. There is also a boost in confidence to communicate in English.

8.2 Themes

THEME LINKS TO DORNEI'S DMC MODEL								
OWNERSHIP	**PARTICIPANT OWNERSHIP** **POSITIVE EMOTIONALITY** **GOAL ORIENTATEDNESS**	**PROGRESS**	**GOAL ORIENTATEDNESS** **PARTICIPANT OWNERSHIP**	**PROGRESS** **POSITIVE EMOTIONALITY** **GOAL ORIENTATEDNESS**	**POSITIVE EMOTIONALITY**	**OWNERSHIP** **SALIENT FACILITATIVE STRUCTURE (task based, collaboration)**	**POSITIVE EMOTIONALITY**	**OWNERSHIP** **POSITIVE EMOTIONALITY** **SALIENT FACILITATIVE STRUCTURE (task based, collaboration)**
THEMES ARISING FROM THE INTERVIEWS AND SURVEY								
LACK OF COMMUNICATION FROM THE TO ABOUT AE IMPORTANCE	**Interview: STUDENTS DON'T SEE AE AS IMPORTANT** **Survey: STUDENTS THINK AE IS IMPORTANT**	**TIME PRESSURES DON'T ALLOW FOR SOLID STUDY OF AE**	**LACK OF DMC Direct Motivational Current**	**PERCEIVED ISSUES WITH THE TESTING**	**PRACTICAL AND VISUAL ACTIVITIES ARE PREFERRED**	**AE IMPACTS OPERATIONAL COMPETENCE**	**HAVING A REAL TEACHER IS IMPORTANT**	**ONLINE LEARNING REQUIREMENTS**
Main reason people fail ATC training is because of poor English	Hard to get participants for the research	Students are very busy with aviation studies	Pay and lifestyle are a motivation to study Aviation. 5/12 say they want a job that pays well. Motivated by money	Vietnamese think the test at home is easier	Students prefer practical activities and simulator activities	Translating English takes too much time and won't work in a control tower	Aviation English teacher has a big impact. It's important to build strong relationships with students. Working with a teacher online would work.	Interacting with others will work best online.
No understanding of Aviation English requirements when starting out Most training organisations don't timetable Aviation English	Aviation English becomes priority if they start struggling with the academic work	Students rely on each other and the best English speakers talk for everyone	Motivation is to pass the minimum standard. 20-30% want good English, rest want to pass the test. Meeting minimum standards is the motivation Meeting a standard is their motivation	IELTS scores are not reliable. No trust in the test	Practical tasks will work best online.	Basic literacy can be a problem with international students	Having an Aviation English teacher means they build strong standards	Recording and listening to yourself would be a great too
Students don't initially understand that English is important	No idea about the Aviation English requirement before they start	Staying in a homestay helps English.	International students can be only interested in passing the test Students prefer to speak their mother tongue	NZ ICAO test is terrible compared to overseas tests Test is easy to pass if you practice it- not a test of real English skills	Being exposed to a range of accents would be useful. Comprehension through a variety of accents is important.	Emergencies are the biggest challenge for speaking English in aviation. Nonstandard situation	An instructor can help with pronunciation English is checked in the simulators	Totally online course would not work. Not possible to learn Aviation English online only. Recommends blended learning. Aviation specific

								blended programme
Lack of awareness around expectations	Learning a 3rd language so they think they are capable	If English is not good, they can get extra remedial support in ATC students.	The responsibility to teach Aviation English depends on the contract – cost	Some students want to pass ICAO test first time. Some are happy to resit until the pass	Practical situations are needed to improve English	Pressure can affect English quality	The organisation tells good English speakers not to help their friends- let them speak for themselves	Online but with a real teacher will work
Lack of awareness around expectations	When ATC students get back to their home country they won't speak conversational English Regional towers usually speak mother tongue		Making Av English compulsory is pushed for ATC because it makes all the other learning easier Good English will give you a better job	Test flawed. Test results are inconsistent	Students prefer practical skills	Having the basics of English is important for success	Instructors determine motivation and success.	Latitude Aviation teaching Av English with online teachers.
Perceived value= Motivation	Students know they can resit until they pass		International towers must speak English- more pay in an international tower. 9/12 say the do it because the want a good career.	ILETS Test is a problem- results don't reflect reality		The training organisation should provide opportunities to improve Aviation English		Students dislike the currently online English programme
Lack of understand about the long term impact of having good English	Aviation English not as appealing		Students don't know at they start of the course that English will impact the quality of their employment opportunities.	As a teacher I could guess what the students might get in the ICAO test.		Students fail aviation studies because of poor English Success on the course depends on English		Making activities into games would be motivating for students
Employers don't promote English as being important	Motivation to speak English is low at the start of a course		Only see English as important when they figure out they are not good at it.	NZ ICAO test providers are not delivering the test in the right way		Better English means you are a better aviator		English should be timetabled
	Implied benefits for being a competent/native English speaker		Aviation fascination motivation. Interest in aviation 8/12 stated passion as a driver	There are big concerns about the NZ ICAO test.		ATC get into bigger towers if they have better English		Students enjoy visual activities
	Course length and cost drive the lack of Aviation English time in a programme		Perception not matching the reality of working in aviation	Inconsistent results from the NZ ICAO test		Students still need good controlling skills.		Simulator experiences only way improve Aviation English

	Survey: 10 promoters 1 detractor 1 passive The majority of student say that they think AE is important **DIFFERENT FROM TEACHERS' COMMENTS**		Motivation – licensing requirement not to improve English	A student with great English failed NZ ICAO test 3 times. Passed on 4th time		To be a good controller you need to have good English		Classroom time doesn't improve Aviation English
			Not motivated by safety to start	Good controller with good English couldn't pass the NZ ICAO test for some reason		Accents make communication difficult		The online English programme is not used by the teachers. If optional they don't use the online English programme at all
			Most Saudi students don't know about aviation at all Motivation to keep scholarships	NZ ICAO test is not seen as a good test by some countries.		Lack of baseline skill = reluctance to speak English		Reading notes will not be motivating. Not sure about online forums
			Not enough basic English skills is demotivating for students	It is hard to 'test' spoken Aviation English out of context of conversation.		English skill allows them to keep up with aviation study		Working with a teacher online would work.
			Cultural differences in motivation based on teacher direction.	IELTS not relevant		Standards for operation English are not enough for educational English		Motivated when they see a direct link to aviation.
			Only use the online English course because the teacher tells them to. Some not even then.	No way to ensure in online learning that it is one person's work				Success = peer based English speaking
			Students told they should be able to pass the minimum standard	There are easier ways to cheat online		Joint responsibility to build Aviation English skills		Traditional English language training not effective.
			Confident speakers engage in conversation.	Want to do better than the minimum so they don't need to be retested.		English ability increases workload output		Colloquial words provide challenges
			Students get better if they are motivated	Standards tests are seen as standards rather than minimums.		Intolerance with the team if your English is not good.		Mother tongue by choice

			Parental expectation Cultural perceptions of success Cultural expectations of achievement- Different cultural expectations			Safety 1st, Cost 2nd		Factors for success- baseline skill and immersion
			Passion = success Passion=success Passion= success Did you mean to write this 3 times?					Rely on competent classmates for translation
			If motivation is not intrinsic = hard to succeed					Aviation English through immersion in the aviation course
			Motivated when they see a direct link to aviation.					Developed informally
			Better employment outcomes if they have better English					Creating 'real' opportunities to speak
			Main motivation is not to be safer.					Aviation Sim games not effective because of prior use
								Small modules of Aviation English could work
								Aviation English is integrated across the curriculum

								Instructors observation is used to assess during course progress
								Online learning can be distracting
								Students confident to use online learning
								No cultural difference in ability to use online learning

Survey Questions:

(how should I be analysing and referencing the survey information)

On a scale from 0-10, how would you rate your AVIATION ENGLISH? 3 promoters, 4 passive, 4 detractors

Thinking about the requirement to be able to use Aviation English- what are your feelings towards this subject? 5 promoters, 5 passive, 1 detractor

Thinking about learning Aviation English, please rate in order the things you would be most interested in doing. Responses in order

1. Aviation Vocabulary
2. Learning about aviation in general
3. Speaking English

4. Listening to English
5. Watching aviation movies and clips
6. Talking to experienced aviators
7. Listening to aviation stories
8. Reading English
9. Writing English

Work out what the survey data says and what the interview data says, what my reflections say. They can all be different.

Include the pre course data as telling a part of the story- why did I choose not to use some of the information

8.3 Extract from Researcher Journal

4th May 2018 – I have sent James the information letter and enrolment/registration details to send out to the six students. He didn't manage to get any more interested from the airlines, which is disappointing but again, it is what it is. He will send this to the students and this should activate the enrolment on the course. Once we have that, I will send them the research information sheet, consent forms etc. I am now worrying that they will enrol on the course but not participate in the research! What on earth will I do if that happens? We'll cross that bridge if we get there.

10th May 2018 – Oh my god! I am checking the enrolment platform every day to see if I have had any students enrol and not one has! I am really worried that, because this isn't compulsory, they just won't bother. I just wish I had a chance to get in front of them to talk about the course and its value to them. I'll give it a couple of days and follow up with James. He must be getting really sick of hearing from me. Do all researchers feel like a pain in the neck to people??

12th May 2018 –James emailed to say that he has sent the enrolment information to the students today! *"Apologies for the delay as we presently have examinations on."* Well at least my worst fears are not true…they haven't enrolled because they haven't had the information- phew!

17th May 2018 – Two responses received. Good stuff…we have action.

Response 1

Yes, I received the email.

Although I haven't yet logged on as I have been busy with our progress tests this week

Reply from me

Hello Sam, so nice to hear from you.

I hope your tests have gone well. I am going to send another email soon that will set up a time for us to meet.

8.4 Interview Questions

COURSE LEADER/TEACHER INTERVIEW QUESTIONS

Date:

Venue:

Research Questions

Question One: How are students generating motivation to participate in the online course?

(a) To what extent do they have an end goal and an accompanying vision that energises their participation?

(b) To what extent do they have and from where are students getting the following?

- *Goal and vision orientedness*
- *Salient and facilitative structures*
- *Participant ownership*
- *Clear perception of progress*
- *Positive emotional loading*

Question Two: What components need to be present in an online course to optimise student engagement?

THEMES

THEMES	**QUESTION**	**SUB QUESTION IF NECESSARY**
GOAL ORIENTATEDNESS	Why do you think most students choose to study aviation/air traffic control?	
	What do you think they understand about the Aviation English requirement before they start?	What do you think they feel about having to pass an Aviation English test?
	How motivated do you think students are to do well in speaking Aviation English?	Is Aviation English a priority for them?

SALIENT FACILITATIVE STRUCTURE	Let's talk about the sorts of things you think interest the students about aviation?	What subject areas do they engage with most easily?
	In your opinion, what do you think is the best way for students to improve their Aviation English?	
OWNERSHIP	Do you ever notice it is hard to motivate students to speak English?	What sorts of things demotivate them? What sorts of things do they do to keep or increase their motivation?
	Who do you think are the people that have the greatest impact on students' success?	
	If we think about studying in an online environment, what are some of the things that you think would keep them interested and motivated? I'm thinking about things like gaming, social media, chat forums etc.	Do you think that students could be successful studying Aviation English in an online environment without a face-to-face teacher? Whose responsibility do you think it is to provide learning opportunities in Aviation English?
PROGRESS	How do you and your team know that a student's English is getting better?	
POSITIVE EMOTIONALITY	What positive impact do you see for students who have good Aviation English?	Do you think they understand the reasons why it is important to have good Aviation English?

8.5 Data Analysis -Survey

DATA ANALYSIS- SURVEY

The survey was divided into six question types.

Demographic and English language information

Goal orientedness and ownership

Salient facilitative structural information – what areas interest them

Progress

Emotional Positivity

Summary Demographic and English Language Information

The age and gender information confirmed industry norms in terms of age and male-dominated gender patterns.

Q1 - What is your age?

Q2 - What is your gender?

Q3 - What is your country of origin?

Q4 - What is your native language (first language)?

Q5 - What languages do you speak fluently?

Q6 - If English is not your first language, how long have you been speaking English?

Q12 - What Aviation Course are you studying?

Of the 17 respondents, eight are studying to be or are Air Traffic Controllers. Nine are studying to be or are pilots.

Q7 - Where did you learn to speak English?

This is a multiple option question

1	At primary school (age 4-13 years)
2	At secondary school (14-18 years)
3	At a tertiary institution (university or other)
4	At home

5	Other (please state)

Q8 - How did you learn English?

This is a multiple option question

1	Using books
2	Online
3	In a class with a teacher
4	Using English at home
5	Living and learning in an English-speaking country
6	Other (please state)

Q9 - On a scale from 0-10, how would you rate your conversational English?

Goal Orientatedness and Motivation

Q11 - Why did you choose to study aviation/air traffic control?

Q13 - On a scale from 0-10, how important do you think it is to communicate well in ENGLISH in an AVIATION environment?

Q14 - On a scale from 0-10, how would you rate your AVIATION ENGLISH?

Q27 - Thinking about your study, how did you (or will your) maintain motivation to complete the aviation course?

Q28 - What did (or what will) motivate you to improve your Aviation English- please indicate which of the following motivated you:

Q32 - At times you may have felt unmotivated to study. What did you do to improve your motivation to study?

Salient Facilitative Structural Information

Q15 - How would you rate your skills and confidence to work in an online environment. (scale 1 poor- 5 excellent)

Q16 - On average how much time do you spend online each day?

Q17 - What devices do you use every day?

Q18 - Approximately what amount of time do you spend each week on these online activities?

#	Field
1	Communication with friends and family
2	Studying
3	Shopping
4	Gaming
5	Watching programmes and content
6	Looking at and posting on social media
7	Reading content (news, books)
8	Listening to music and/or podcasts
9	Other

Q20 - Have you ever done any online learning? (that is, without a face-to-face teacher).

Q21 - If you have you ever studied using an online course, please state what you were learning or name the course you were doing. (If too numerous to note please just put a number and the last 2 courses you completed.)

Q22 - Below is a list of commonly-used social media platforms. Please check any that you use daily.

Q24 - What language do you communicate in on social media?

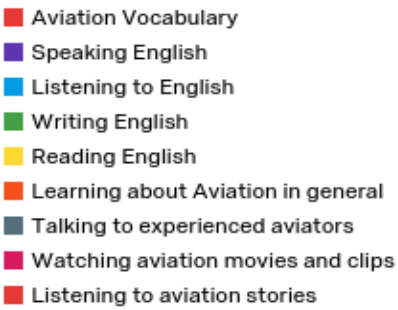
Q34 - If you were to study Aviation English in an online environment, what things do you think should be included in the course?

Emotional Positivity

Q25 - Thinking about the requirement to be able to use Aviation English, what are your feelings towards this subject?

Q26 - Thinking about learning Aviation English, please rate in order the things you would be most interested in doing.

This was the list of options:



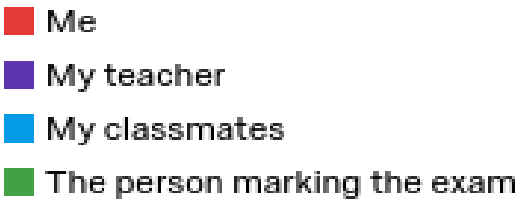
Q29 - In your opinion, what is the best way to get better at Aviation English?

	OPTIONS
1	In a structured, timetabled class time
2	By having real life opportunities to speak Aviation English
3	By working with other students to practise speaking and listening
4	To do it in my own time rather than in a fixed timetabled class

Q10 - On a scale from 0-10, how much do you enjoy communicating in English?

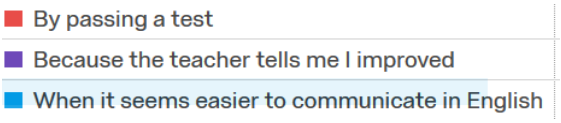
Q30 - Who do you think would have the greatest impact on your success? Please rank in order.

OPTIONS



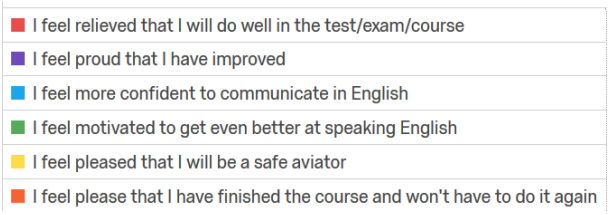
Q31 - How do you know you are improving?

OPTIONS



Q33 - How does it feel when you know you are improving?

OPTIONS



8.6 Ethics Approval

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

HUMAN ETHICS COMMITTEE
Secretary, Rebecca Robinson
Telephone: +64 03 369 4588, Extn 94588
Email: human-ethics@canterbury.ac.nz

Ref: 2018/07/ERHEC Amendment 1

18 July 2018

Delena Costello
College of Education, Health and Human Development
UNIVERSITY OF CANTERBURY

Dear Delena

Thank you for your request for an amendment to your research proposal ""Say Again" - Aviation English in a CALL World" as outlined in your email dated 28th June 2018. I am pleased to advise that this amendment has been considered and approved by the Educational Research Human Ethics Committee.

Please note that should circumstances relevant to this current application change you are required to reapply for ethical approval.

If you have any questions regarding this approval, please advise.

We wish you well for your continuing research.

Yours sincerely

pp R. Robinson

Dr Patrick Shepherd
Chair
Educational Research Human Ethics Committee

Please note that ethical approval relates only to the ethical elements of the relationship between the researcher, research participants and other stakeholders. The granting of approval by the Educational Research Human Ethics Committee should not be interpreted as comment on the methodology, legality, value or any other matters relating to this research.

F E S

8.7 Information Sheet

INFORMATION SHEET - Questionnaire Participants

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

School of Education Studies and Leadership
Telephone: 09 9415126
Email: dmc234@uclive.ac.nz
11th February 2018

"Say again! Aviation English in a Computer Assisted Language Learning World"

INFORMATION SHEET FOR AVIATION STUDENTS

I am Del Costello, a Masters student at the University of Canterbury, School of Educational Studies and Leadership. As part of my studies I am undertaking a research project (thesis) and would like to provide you with information about my project and invite you to participate.

What is the project about?
Before 2003, there were a number of high profile aviation accidents where the cause of error was identified as being language proficiency of aircrew and/or air traffic controllers (ATC). Following this, the International Civil Aviation Organisation (ICAO) introduced the Language Proficiency Requirements (ICAO 2010, section 4.2.1). Under these requirements, all pilots and ATC must show the ability to speak and understand English to an operational standard.

In this research I will be exploring the opportunities and the challenges experienced by aviation student who do not have English as a first language. The focus of the course and research is on speaking and listening skills. By participating in this research project, you will be helping me understand how best the Aviation industry can support student pilots in improving their Aviation English. The results of this study will be used to see if an online course like this is useful as a learning and teaching tool for Aviation English. This will contribute to the continuous improvement of aviation safety standards.

If you choose to take part, this will happen:

1. You will complete an online survey. *This will take about 20 minutes to complete.*

Participation in this project is voluntary.

If you choose to participate you will have the right to withdraw at any stage with no penalty. I will do my best to remove any information related to you, provided this is practically achievable.

If you do not participate, you will not be penalised in anyway. It will not affect your participation in the course.

The course and research will be designed to accommodate and work around any of your cultural/religious commitments.

1

A thesis is a public document and will be available through the UC Library. The findings of this research may be published or reported on but you may be assured of the complete confidentiality of data gathered in this investigation.

To ensure confidentiality, I will make sure that the only people who will have access to the data will be me (Del Costello), my UC supervisors Professor Niki Davis, Dr Cheryl Brown and Dr Vera Leier. Confidentiality and anonymity will be assured and you will be asked to use a pseudonym (false name) in online activities. Data will be securely stored and password protected in the Universities Nvivo data management system. Your teachers and employer will not have access to any personal data at any stage. Only the individuals listed above will have access to the data. The data will be destroyed after 5 years from the studies completion.

If at any time you feel that participating in the study is compromising your confidentiality, please contact me, Del Costello so we can discuss the issue. You are also welcome to contact my supervisors or the the Chair of te Educational Research Human Ethics Committee (please see contact details below).

Participants are able to receive a report on the study and can request this report when signing the consent forms,

Our contact details are:

Del Costello- phone 09 9415126

Assoc Professor Cheryl Brown - College of Education, Health & Human Development
University of Canterbury, Te Whare Wānanga O Waitaha
Private Bag 4800, Christchurch 8140,Aotearoa New New Zealand
cheryl.brown@canterbury.ac.nz

The research project has received ethical approval from the University of Canterbury Educational Research Human Ethics Committee, and participants should address any complaints to The Chair, Educational Research Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch (**human-ethics@canterbury.ac.nz**)

If you are interested in participating in the project please would you give your personal consent by electronically signing the attached consent form (using esign www.adobeesign.com) or print/sign/scan and return this consent form via email to me: dmc24@uclive.ac.nz

Thank you for your time.

Del Costello

dmc234@uclive.ac.nz

09 9415126

9 Glossary

This section includes an overview of some key terms used in this research and will clarify their meaning.

Standard phraseologies: a set of communication rules for simplified English language communication between an air traffic controller and the pilot in command of an aircraft. In the majority of countries, the aeronautical phraseology in use is based on standards developed by the International Civil Aviation Organization.

ICAO	International Civil Aviation Organization

CALL	Computer Assisted Language Learning

NAVALMANS LICENCE	The operating licence given to sailors that provided evidence of competency

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